BRITISH COLUMBIA DEPARTMENT OF MINES

Hon. Wm. Sloan, Minister.
Robt. Dunn, Deputy Minister. J. D. Galloway, Provincial Mineralogist.
G. Wilkinson, Chief Inspector of Mines.

SUMMARY OF MINING OPERATIONS

FOR THE EIGHT MONTHS' PERIOD JANUARY 1ST TO AUGUST 31ST. 1925

IN THE

PROVINCE OF BRITISH COLUMBIA

COMPILED BY
JOHN D. GALLOWAY, Provincial Mineralogist

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1925.

To the Hon. William Sloan,

Minister of Mines, Victoria, B.C.

Sir—I beg to submit herewith a summary of mining operations in the Province for the eight months' period from January 1st to August 31st, 1925.

The object of this bulletin is to summarize briefly the progress of the industry and to give an approximate figure of the mineral production for the period under review and a forecast for the full year 1925.

Included are reports on each of the Mineral Survey Districts of the Province by the Resident Engineers and a summary regarding coal-mining by the Chief Inspector.

I have the honour to be,

Sir,

Your obedient servant,

JOHN D. GALLOWAY,

Provincial Mineralogist.

101-03510/

SUMMARY OF MINING OPERATIONS.

GENERAL SUMMARY.

By John D. Galloway, Provincial Mineralogist.

It is estimated that the monetary value of the mineral production of the Province for the eight months, January 1st to August 31st, is approximately $41,000,000. This indicates that the total final production for the year 1925 will approximate at least $60,000,000, which will be a large increase on the previous record year of 1924, when an output of $48,704,604 was made.

N VIEW of the widespread interest in mining in the Province in the first part of 1925, this bulletin is issued in order to summarize briefly the more important mining activities and developments for the eight months ended August 31st. Included is a brief report by each of the six Resident Mining Engineers reviewing his district and a summary on coal-mining by the Chief Inspector of Mines.

In all phases of mining—prospecting, development, and production; lode-mining, placer-mining, and coal-mining—the current year is witnessing a healthy and vigorous activity.

The progress of the mineral industry of a country is shown by the record of output, and in the case of British Columbia the following production figures show that a steady growth is taking place:—

Year.	Value of Total Mineral Production.
1894	$ 1,249,531
1899	12,393,131
1904	18,977,359
1909	24,443,025
1914	26,388,825
1919	33,296,313
1924	48,704,604
1925 (first eight months, approximate estimate)	41,000,000

Although 1924 had a record mineral production for the Province, it seems more than probable that it will be greatly overshadowed by the final figures for 1925. The following table shows the approximate mineral production of the Province for the period under review:—

Product.	Quantities produced Jan. 1st to Aug. 31st, 1925.
Gold, oz.	148,000
Silver, oz.	5,280,000
Copper, lb.	44,570,000
Lead, lb.	142,000,000
Zinc, lb.	75,850,000
Coal, tons (2,240 lb.)	1,584,695
Coke, tons	48,980
Miscellaneous products	$2,000,000

The total monetary value is estimated at about $41,000,000 for the eight months under review.

It is expected that the steadily shipping mines will continue production for the remainder of the year at about the same rate as in the first eight months.

Owing to the commencement of operations by the Allenby Copper Company in August, a larger monthly output of copper will be made during the last four months of this year.

Many small properties are expected to make shipments towards the end of the year that had not been shipping earlier. Coal production is generally higher in the last four months of the year than in the summer months.

It is therefore more than likely that the total mineral production for the year will be at least as large as the indicated output based on the eight months' period. Allowing, however, for unforeseen contingencies, it is probable that the mineral production of British Columbia for the year 1925 will be somewhere about $60,000,000.

The increased rate of production during the current year, measured in the common denomination of dollars, is caused partly by increased metal and coal production and partly by increased average metal prices. The largest increases recorded are in lead and zinc, which are in large part due to the immense production now being made by the *Sullivan* mine of the Consolidated Mining and Smelting Company of Canada, Limited—the greatest lead-zinc mine in the world. It is interesting to note that the metals silver, lead, and zinc contained in the crude ore of this mine are smelted, refined, and prepared in finished condition for the market at the company's metallurgical works at Trail.

Copper also shows an increased rate of production owing to larger outputs by the Granby and Britannia Companies.

Gold and silver production are at about the normal rate, with the latter showing a slight increase.

One of the factors which is acting as a strong incentive to mining, not only in British Columbia but the world over, is the general high average of the metal prices. In the following table are shown average metal prices in the New York market for 1924 and for the eight months ended August 31st, 1925:—

Metal.	1924. Cents.	Eight Months to Aug. 31st, 1925. Cents.
Silver, oz.	66.781	68.499
Copper, lb.	13.024	13.950
Lead, lb.	8.097	8.770
Zinc, lb.	6.344	7.280

The market prices of silver, lead, and zinc are excellent, the demand is keen, and the present prices are likely to be maintained or increased in the future. The ever-growing uses and demand for lead and zinc and the comparatively small known world reserves of ores containing these metals are causes which are practically certain to keep these metals at a high price.

The price of copper has been low for the last five years, mainly due to the world production being greater than the demand. This disparity between supply and demand is gradually being lessened and in the last two months the price of copper has advanced about 1 cent a pound. The present price level of close to 15 cents is expected to be maintained, and this price is high enough to encourage extensive mining and development of the copper-deposits of the Province.

The action of the Granby Company in opening the Copper Mountain mine and mill (Allenby Copper Company) is indicative of faith in the copper market and shows that under present conditions a renewed inquiry for copper properties may be expected. Similarly, the bonding of the *Lucky Four* copper property near Chilliwack by the Anaconda Copper Company is of decided interest.

In the near future it is probable that the *Old Sport* and *Sunloch* copper properties of the Consolidated Mining and Smelting Company on the Coast may be made productive.

It is unnecessary to here summarize the important results obtained by mining development in the period under review, as these are detailed in the several reports of the Resident Mining Engineers contained in this bulletin.

A most significant feature of the present activity in mining is the way in which many partially developed properties and also prospects, which have been lying dormant for some years, are now being taken up and developed. There are certain parts of the Province in which there has been more pronounced activity than in others, but it cannot be too strongly emphasized that the known prospected areas of the Province still contain many properties that at least warrant careful examination.

With higher metal prices and improved transportation, properties that were unattractive a few years ago now appear as possible profitable mines. In the past comparatively few mines in British Columbia have been "found"; most of them have been "made" by intelligent development, and abundant opportunities still remain for the capable examining engineer to recognize the hidden merits of many prospects.

The outstanding construction developments of the year to date have been: The completion of the additions and enlargements to the smelter and refinery of the Consolidated Mining, Smelting, and Power Company at Trail, whereby the zinc plant has been doubled, giving it a capacity of 200 tons of zinc a day and increasing the lead plant from a capacity of 185 tons to 350 tons of lead a day; the completion of the new 40,000-horse-power hydro-electric unit at the West Kootenay Power and Light Company's plant at Bonnington Falls, which supplies the

necessary additional power required at the Trail smelter; construction of the hydro-electric plant by the East Kootenay Power Company at Elk River falls; general repairs to the branch railway and mill of the Allenby Copper Company near Princeton to enable the commencement of mining and milling operations at the company's property in August; announcement of the doubling of the capacity of the concentrator at the *Premier* mine; repairs and starting-up of the old Rosebery mill by the Lucky Jim Company; the erection of a small concentrator at Kaslo to treat the tailings from the old *Whitewater* mill; the construction of a 500-ton concentrator at Moyie to treat the tailings from the old *St. Eugene* mill; the erection of a small stamp-mill on the *Ophir-Lade* group on Gainer creek; the successful operation of the gold-dredge on Antler creek and the extensive construction at the *Engineer* mine at Atlin.

The more important mining transactions that have been announced since the commencement of the year have been: Acquirement of the *Forty Nine* group at Stewart, under option by the Premier Mining Company; purchase of control of the Atlin Silver-Lead Company's properties at Atlin by the Federal Mining and Smelting Company; purchase of the *Sally* group at Beaverdell by the Federal Company; optioning of the *Lucky Four* group near Chilliwack by the Anaconda Copper Company; optioning of the *Kicking Horse* and *Monarch* mines by A. B. Trites; acquirement of the *Reno* group, Nelson Division, by American interests; and in addition numerous deals whereby properties have been taken up by individuals and stock companies.

From the reports of the Resident Engineers it is evident that prospectors have been numerous and active this season, but more work has been devoted to proving claims than seeking for new properties. The present demand by mining capital for promising prospects and the number that have been optioned this year will act as a great stimulus to more extensive prospecting. Many areas in the Province that geologically are promising for the occurrence of ore-bodies have only been slightly prospected and for the skilful prospector plenty of opportunities can be found.

Included in this bulletin is a review of the coal situation in the Province by George Wilkinson, Chief Inspector of Mines, in which it is pointed out that the coal-mines are producing more coal than in 1924, and that the industry is emerging gradually from the slump it has gone through in recent years.

It can be confidently predicted that the present healthy condition of the mining industry in British Columbia will be maintained. With high metal prices, abundant capital looking for mining investment, improved transportation, reasonable costs and satisfactory labour conditions, and nearly ideal mining laws, the next decade will undoubtedly witness a tremendous growth in reaping the golden harvest of British Columbia's widespread mineral wealth.

MINING PROMOTION.

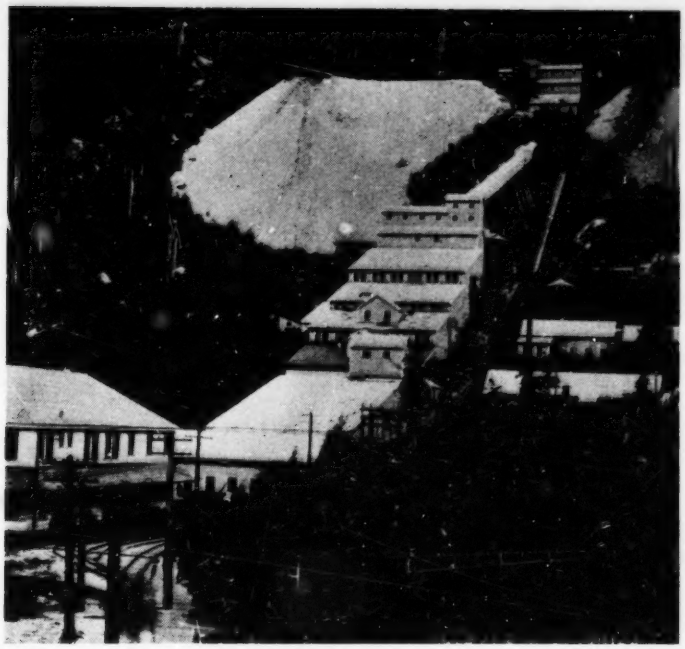
During the present year much activity has taken place in mining, one feature of which has been the incorporation of many stock companies for the purpose of developing mineral properties. These stock companies have in nearly every case invited the public to buy shares in order to provide funds for the development of the property.

It is inevitable in a movement of this nature that some worthless properties are acquired and promoted, also that the public is misled by some of the statements made in connection with the selling of stock. Such a condition is not peculiar to mining, but is the invariable accompaniment of speculation. Notwithstanding all efforts to check unscrupulous promotion, a certain amount always takes place. Early in the year steps were taken by the Hon. the Minister of Mines to have all mining company promotions checked up, so that in as far as possible "wild-catting" would be stopped. As a result of representations from the Department, a number of company prospectuses which were considered misleading were voluntarily withdrawn. In four cases public notice has been given by the Hon. the Minister of Mines that statements contained in literature issued were not in accordance with the facts as ascertained by the Resident Mining Engineers. These advertised notices, which are in effect warnings to the public, are issued under the authority of section 16 of the "Mineral Survey and Development Act." The purpose of this section and the policy of the Department is not in any way to hinder the development of any mineral property, but to make sure that the prospectus and descriptive literature issued by any public company about its mineral property do not misrepresent the actual facts.

To all those who contemplate investing in British Columbia mining stock the following observations may be of interest: Reports on nearly every mine and property in the Province can

be found in the Annual Reports of the Minister of Mines and all other available information will be freely given on application to the Department of Mines. Most responsible companies have a report on the mineral property by a capable mining engineer. If satisfied that the property has merit, then scrutinize carefully the business side of the company, including capitalization, promoters' shares, price to be paid for the property, discounts and commissions to be paid, and the character of the management.

It may safely be predicted that much profit will be won from British Columbia mines during future years, so that intelligent investment in legitimate mining enterprises is well worth the careful investigation of those who have the requisite funds. It is desirable that a fair proportion of our future mining dividends should accrue to residents of British Columbia.



Belmont-Surf Inlet Mines, Ltd.—Mill Plant.

Goldpan Creek, Liard M.D.

MINING DISTRICTS OF BRITISH COLUMBIA.

NORTH-WESTERN MINERAL SURVEY DISTRICT (No. 1).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY GEO. A. CLOTHIER, RESIDENT MINING ENGINEER.

GENERAL REMARKS.

The following is a brief review of the mining industry of District No. 1 up to August 31st of the present year. I have not, as yet, covered the entire district, but am giving what information is available on the sections not yet examined.

From the following descriptions of the developments under way it will be seen that this has been the most progressive year in mining in this district; not only is the Portland Canal section having an extraordinary development, but every part of the district is coming into importance. In the north the development of the *Engineer* and the Ruffner properties has revived other properties; the Dease Lake rush will without doubt open up that section more than anything else could; the enlargement of the *Premier* plant and the number of properties under development assures the future of the Portland Canal section; the outstanding development of the *Torie* mine at Alice Arm will compel deserved recognition of the section's possibilities; the Kalum Lake section is coming to the front; the opening of the old Shannon property on Khutse inlet is a good sign. The old producers, with the exception of the *Surf-Inlet* mine, may be expected to continue as at present, and the results of development are being demonstrated by the addition of other properties to the shipping-list.

All indications are that the output of the district for this year will at least be up to last year, between $10,000,000 and $11,000,000.

SKEENA MINING DIVISION.

There has been a greater amount of prospecting and assessment work done on the Coast and offshore islands than in former years, notably on Princess Royal, Gribbell, James, Pitt, Porcher, and Gibson islands. The magnetite-showings on the north sides of Pitt and Porcher islands are being kept in good standing.

Belmont-Surf Inlet Mines, Ltd.—This has been the most important property in the Coast section for several years, but the ore-bodies are about depleted and it is only a matter of a comparatively short time until they will be exhausted. It is estimated by the management that there is sufficient remaining ore available to keep the plant in operation until the end of the year at least, with the probability that production will be maintained well into next year. Development-work has been discontinued and operations confined to mining and milling the ore pillars. This is proving very profitable and the value production will therefore be substantially higher than last year.

The company is persistently scouting for another property to which it may divert its very efficient organisation and plant.

Paisley Point Mines, Ltd.—This company, with a capitalization of 250,000 shares at 25 cents each par, was incorporated in March of this year to operate the property of the old Drum Lummon Mines, Limited, situated on Douglas channel. The old company went into liquidation and the property was disposed of by tender in November, 1924. I have not been on the property this year, but will examine it this fall.

Martin and Shannon Property.—This property, consisting of forty-eight Crown-granted mineral claims on Khutse inlet above Swanson bay, is again under development after lying idle for a number of years; it will also be examined this fall.

Patterson Group.—This group of mineral claims on Porcher island has made small shipments of good-grade gold ore for several years. It is now being worked by leasers.

No mining of any importance has been done along the Skeena river or the Canadian National Railway west of Terrace.

There are several showings on Thornhill mountain across the Skeena river from Terrace that are well worth investigating. The most promising of these are:—

St. Paul Group.—These claims are owned by Michaud Bros., of Terrace, and are situated on the summit of Thornhill mountain. There is a fair horse-trail from the main Lakelse wagon-road to the summit. There are four claims in the group, the main showing being on the *St. Paul* claim. The showing is an outstanding cropping of quartz up to 14 feet wide, mineralized with pyrite, chalcopyrite, galena, and zinc-blende. The mineralization and size of the vein warrants its development.

Society Girl Group.—This adjoins the *St. Paul* group on the west and contains the extension of the *St. Paul* vein.

Golden Nib Claim.—This is owned by Wm. Dahl, of Terrace, and is situated about ten minutes' walk up the hill from the 7-Mile post on the Lakelse wagon-road. About 90 feet of a tunnel has been driven on a small quartz vein toward getting under a cropping of solid sulphides which is exposed by a short open-cut on the surface above. The vein at this point is about 6 feet in width, with 6 inches of sulphides, and the balance of sparingly mineralized quartz and country-rock. A sample of the heavy sulphides gave assay returns of $66 gold to the ton.

The Kitsumgallum Lake section is having its most active season both in prospecting and development work and is making very substantial progress. The wagon-road from Terrace has this year been completed through to the foot of the lake, a distance of about 20 miles. Supplies are now delivered from Terrace by motor-truck to the foot of the lake, from which point they are distributed by boat and pack-horses to the various properties. There are good accommodations at Cobb's road-house at the foot of the lake.

Black Wolf Mining Co., Ltd.—This is an extra-provincial company comprised of Seattle and Eastern people, which has bonded the *Black Wolf* group of mineral claims situated on Maroon mountain. Surface work consisting of open-cuts has traced the vein for several hundred feet, showing it to be of quartz well mineralized with pyrite, zinc-blende, and galena, with chalcopyrite in small amounts. The vein is small where exposed so far, probably averaging about 14 inches in width, but in places shows up to 8 inches of solid minerals assaying high in silver and gold. It is, without doubt, the westerly extension of the *Bear* vein and the values obtained justify considerable development-work.

Black Bear Group.—The Hopper-Davis Syndicate, which is also heavily interested in the Black Wolf Mining Company, has an option on this group. This property has been under option for the past two years to the Chiro Mining Company, which, however, did not accomplish a great deal either in development or experimental milling work. A crosscut tunnel has been started which will intersect the vein at a depth of 90 feet; from this drifts can be driven both ways and a definite idea gained as to the tonnage to be expected and the values in the ore.

Glen No. 1 Claim.—This property, situated on the Little Beaver river, is also under option to Mr. Hopper and associates. The showing consists of a well-defined quartz vein ranging from slightly pyritized quartz to almost solid sulphides, arsenopyrite, zinc-blende, and small amounts of galena. Only a little surface work has been done so far, but it will be further opened up this season.

Kalum Lake Mines, Ltd.—The holdings of this company are on the west side of Kitsumgallum lake about a mile from the south end. A good camp has been built on the shore of the lake and steady development of the property carried on all year. The working-shaft is down 60 feet, 40 feet below the lake-level, from which a drift west on the vein is showing satisfactory results. This drift is in igneous rock formation in which are numerous dykes, and it will therefore be interesting to see what develops when the slate formation is entered, which shows on the surface a short distance ahead of the present workings. The vein is quartz up to 2 feet wide carrying gold and silver values. Under the present careful management the property has a good chance of making a profitable small mine.

Assessments have been done on numerous properties in this well-mineralized area—along the lake, up Cedar river, and on Maroon mountain.

QUEEN CHARLOTTE MINING DIVISION.

There seems to be but little mining activity on the islands so far this year. Assessment-work is about the only development being done. There are several groups of claims in this Division that I think would bear investigation—namely, the *Blue Mule* group on the west coast of Moresby island, carrying values in free gold; the *Swede* group at Lockeport, which is an

immense body of low-grade copper ore; the *South Easter* group at Skidegate, on which considerable work has been done showing probabilities of a tonnage of gold-silver ore; the *Copper Queen* group at Jedway, on which there are extensive surface showings of copper ore; the *Hope* group at the head of Houston inlet, which is a prospect showing a good-sized vein of copper ore; the Ikeda Mines on Ikeda bay, from which a considerable tonnage of good-grade copper ore was shipped several years ago; the *Thunder* group on the east coast of Moresby island at Collison bay, which shows a big vein of magnetite carrying fair copper content; the *Meal Ticket* group, adjoining the *Thunder*, which has a large vein of quartz well mineralized with pyrrhotite and chalcopyrite.

I have no information at hand as to what is being done with the experimental work for the extraction of gold from the black sands on the north and east coasts of Graham island. There are miles of beach in which the black sands are bedded, from which properly taken, average samples show workable values if a process for extraction can be devised.

NASS RIVER MINING DIVISION.

This Division is having about a normal year in prospecting, development-work, and production. The Alice Arm country has been unaccountably inactive for the past two or three years notwithstanding the many meritorious showings which in my opinion make this section one of the most attractive for investigation in the district. The rather sensational development of the *Toric* property is an outstanding example of the probabilities of this area.

Granby Consolidated Mining, Smelting, and Power Co.—This company is concentrating all its efforts on the production of copper. No new work or improvements have been undertaken at the Anyox plant. The concentrator, while hardly up to capacity, is treating from 1,200 to 1,300 tons of ore a day, the concentrates from which are shipped to Tacoma. It is estimated by the management that the production this year will be substantially the best the property has ever made.

Golskeish Mines, Ltd.—This property has been shipping steadily all year to the Anyox smelter, the tonnage to date equalling former yearly outputs.

Esperanza.—This property, situated at Alice Arm, was operated for some time this year by the owners, shipments being made to the Anyox smelter. It was later leased by Norman Fraser, one of the owners, who also sent small shipments to the smelter. At present the property is idle pending negotiations for its sale.

Alice Arm-La Rose Mining Co., Ltd.—This company has disposed of sufficient stock to drive a crosscut tunnel to intersect the vein at a depth of 140 feet below the surface. It is estimated that it will require between 375 and 400 feet of driving, of which 275 feet has been done to date. Should this work encounter a showing of high-grade ore equal to that mined in the shaft from the surface, the outlook for the property will be very favourable. There is a good trail to the railway and shipments could be made all winter.

Toric.—This property was bonded by the Consolidated Homestake Mining and Development Company, Limited, in August, 1924, and has been under steady development ever since, with A. C. Gerhardi in charge of operations. Since last year's report a considerable amount of development-work has been done underground, totalling about 600 feet exclusive of the main crosscut tunnel from the surface to the vein. This work consists of three crosscuts through the vein, a drift of 125 feet on the foot-wall of the vein, and a drift of 80 feet in the hanging-wall of the vein, demonstrating the strike to be approximately east and west and the dip from 35° to 45° north. The middle crosscut, just west of the fault, exposes the mineralization for a width of 130 feet, which would make the actual width of the vein about 70 feet at this point. The vein has been proven for a length of about 200 feet with the underground work, which gives rather startling tonnage figures above the tunnel to the surface. The ore-body has been thoroughly sampled underground by the company, but I have no information as to the average values obtained. Native silver can be seen in many places along the crosscuts as well as argentite and ruby silver, but if the whole will average a milling grade of ore it is certainly one of the most important developments in the country this year.

Kitsault River Mining and Development Co., Ltd.—This company was organized this year to develop the *Fox*, *Matilda*, and *Blue Ribbon* groups of claims in the upper Kitsault valley, about 8 miles north of the *Dolly Varden*. There are promising mineral-showings on this ground and I understand that the work is being concentrated on the *Matilda*. The original owners are

looking after the work, which ensures the efficient expenditure of company funds. I intend examining the property later.

Work is being done on several properties in the upper Kitsault valley. On the *Chance* group, on Trout creek, the owners are extending the crosscut tunnel towards cutting the vein at depth. A contract has been let for 75 feet of drifting and crosscutting on the *Climax* group, adjoining the *Chance*. A tunnel is being driven on a promising showing on the *Silver Horde* group.

On the *Devlin Zinc*, situated on the North-east fork of the Kitsault river about 9 miles from Alice Arm, a contract has been let for 100 feet of drifting on a vein carrying an encouraging percentage of pure zinc-blende. I will examine this later.

Standard Group.—The Granby Consolidated took option on this property in the early summer and did a lot of surface-stripping and open-cutting to prove what appeared to be a large body of zinc-blende bearing quartz. Though some very fair showings of ore were exposed, they did not come up to expectations and the option was dropped.

Other exposures of zinc ore have been reported on McGrath mountain which will be examined later.

There are no developments of note on the Illiance, Lime, or Roundy creeks.

PORTLAND CANAL MINING DIVISION.

This Division has again this year been the centre of attraction for mining in this district, and substantial, solid progress has been made towards permanent mining.

Inevitably a number of properties of no visible merit have been put on the market and stock-selling has been done on unreliable statements emanating from the "promoting prospector" and his partner, the "prospecting promoter," but efforts are being continued to eliminate this class of mining as much as possible.

At present there are four shipping properties in the Division, thirty-eight properties under development by companies, and a number being explored by individuals. Out of eighteen companies incorporated this year eleven have been operating during the season.

The attention of the public is called to the statements made in advertising matter of values obtained from samples. Throughout the district are small veins and stringers from which enough high-grade ore can be obtained to get a high assay for publication, but many of such assays are misleading, as no width of ore is stated, and there are instances where not enough of such ore could be found for mining.

Outsider Group.—This property is situated at Maple bay, on Portland canal, and is operated by the Granby Consolidated Company. The ore is being mined by contract and about 150 tons a day is shipped to the smelter. It is very siliceous, carries low copper values, and is therefore utilized for fluxing. There is large tonnage of broken ore in reserve at the mine.

I have not as yet been over the Georgia River section, but will do so later. Several promising prospects are reported in that area and at the head of Bulldog creek, north of the head of the Georgia. The trail from the canal up the river has been repaired and extended this year with a grant from the Mines Department.

MARMOT RIVER SECTION.

Three groups of claims on the Marmot river have been incorporated and will be examined later for the Annual Report.

Funds were provided by the Mines Department for a road, suitable for winter hauling, from the beach to the forks. This has been partially built this year.

Marmot Metals Co., Ltd.—This company is developing the old *Montana* group of claims, owned by Geo. Bruggy and H. C. Magee, from which small shipments of high-grade silver ore were shipped in the early days. The management of the company is sound and the prospects of developing a profitable small property are good.

Sterling Silver-Lead Mines, Ltd.—This company has options on four groups of claims, three groups on the North fork and one on the north side of the main river. There is some favourable-looking prospecting-ground on these holdings, which, however, will require extensive exploration and therefore ample funds.

Porter-Idaho Mining Co., Ltd.—This company was incorporated early in the year and I am informed was very successful in raising sufficient capital to proceed with a comprehensive programme of development. Last year 147 tons of high-grade silver ore was shipped.

Development-work was resumed this spring under the supervision of Clay Porter, the original owner, and has been successful in opening up new ore-bodies, from which about 70 tons has been shipped so far and about 2 tons a day is now being mined. This property is being well handled and should be a profitable undertaking.

Several individually owned groups are having at least assessments done on them and altogether the Marmot River section gives every promise of steady production.

BEAR RIVER SECTION.

The Bear River valley is having its greatest development year, and while very satisfactory results have been obtained on several properties, only one, the *L. & L.* on Glacier creek, has yet arrived at the shipping stage.

It is being realized more and more that the property from which profitable high-grade ore can be mined is very rare, and that the most desirable mine to develop is the one indicating substantial bodies of milling-grade ore.

With the reorganization of the Dunwell Mines, Limited, and its resumption of work, the Bear River valley will be in a better mining condition than ever before, except for transportation. If the main Bear River road had been reconstructed around Muddy gulch, allowing freight-trucks to go through to American creek, it would have been of more benefit to miners than expending all the money in rebuilding Ward's pass, which has always been passable for trucks.

Silver Slipper Mining Co., Ltd.—This company is a 1925 incorporation, with holdings consisting of the *Silver Shoe* group of mineral claims situated north of the mouth of the Marmot river, on the Canal slope of the mountain. The showings are above 4,000 feet elevation and consist of three small quartz veins, the two I saw averaging less than 12 inches in width, and a large vein, up to 12 feet in width, of barren white quartz. The highest assay obtained from samples from the small veins was $13.85 in gold and silver values to the ton. The big vein I did not consider worth sampling.

On present indications I consider the chances of this property making a profitable undertaking are very remote. The statements made in the prospectus issued by the company are, in my opinion, misleading.

Silver Bell.—This group, consisting of eight claims, lies between the *Silverado* and *Silver Slipper* and is owned by John Haahti and associates. The showing consists of a band of greenstone lying south of a schistose-greenstone belt about 50 feet wide, which is mineralized across a width of about 4 feet, so far as exposed, with small stringers and seams of pyrite and sphalerite carrying a trace of galena. The showing is at 4,000 feet elevation and might be worth a little more work to obtain some depth and crosscut it.

Silverado Mining Co., Ltd.—This company's holdings consist of thirteen mineral claims and fractional claims situated east of the head of Portland canal, extending from salt water to the top of the mountain. The old showings and tunnel have been described in former reports. A long tunnel was driven into the hill on the flat vein, from which some very high-grade silver ore was taken, to cut three veins exposed on the mountain above showing good values on the surface. These veins, however, were not located by the tunnel and consequently work was abandoned in that portion of the property.

A short distance south of the upper camp, which is at 3,650 feet elevation, some work was being done on what is known as the "Gold Vein." Here surface-stripping disclosed a badly oxidized quartz vein up to 2 feet in width, from which samples gave $30 a ton in gold. It has been exposed for about 100 feet on the surface, striking in an east-west direction. A short crosscut tunnel was being driven to cut this vein at shallow depth and then drive on it for 50 to 60 feet.

Open-cutting was also being done on some croppings of ore on the north side of the canyon below the glacier and it is reported that a fair showing of good-grade ore has been uncovered.

Gold Ore Mining Co., Ltd.—This company was incorporated in February of this year, with a capitalization of $500,000 divided into 5,000,000 shares of the par value of 10 cents each. The

property of the company consists (or did) of the *Eagle No. 1*, *Eagle No. 3 Frac.*, *Eagle Fractional No. 4*, and *Babe No. 2* mineral claims, recorded as the *Eagle* group. Later it was announced that the company had optioned the *Morning Star* group on Glacier creek; this option, however, was never exercised. Three of the above claims were allowed to expire and the company's holdings I believe now consist of one fractional claim. The claims that expired were staked in the name of one of the original owners and associates.

I had not seen this property previous to the incorporation of the company and had to make two trips to it this year before the snow had gone sufficiently for me to make an examination of the showings. These are at an elevation of over 3,000 feet and comprise two quartz veins. The South vein has been open-cut in three or four places along a small creek-bed, tracing it for about 150 feet and showing it to be considerably twisted and disturbed. This vein averages about 5 feet in width and lies in the prevailing greenstone formation. A sample across the vein of 54 inches close to the bottom of the upper cut gave $3.63 a ton in gold and silver values. There are small stringers and bunches of pyrite and heavily pyritized quartz forming a very small proportion of the vein, the best of which assayed $28 a ton. There is not enough of this to sort and ship at a profit.

About 400 feet north of and paralleling this vein is another quartz vein, from which a sample across 8 feet gave assay returns of 27 cents a ton in gold and silver. From this it will be seen that the statements made in the prospectus and advertising matter were totally at variance with the facts.

Dunwell Mines, Ltd.—This property was closed down last winter and has not yet resumed operations; however, a reorganization of the company is under way and it is expected that work will be started at an early date.

Some little surface prospecting has been carried on during the summer, resulting in the tracing of a new vein for upwards of 800 feet to the north boundary of the *Sunbeam* claim. Several cuts on this vein show it to be from 2 to 5 feet wide, dipping west and paralleling the vein opened up in the main workings below. While I did not have time to sample it, there is sufficient heavy native silver showing in the cuts to pronounce the whole a very fair grade of ore. The most southerly exposure of this new showing is approximately 1,000 feet north of the face of the No. 3 tunnel and strongly indicates that similar ore may be expected in the main vein as drifting north is proceeded with.

Glacier Creek Mining Co., Ltd.—A considerable footage of diamond-drilling has been done on this property since the first of the year, but I have no authentic information as to results obtained.

Lakeview (Stewart, B.C.) Mines, Ltd.—This property has been working steadily all year until just recently when finances necessitated a temporary close-down. A very efficient little power plant was installed at the mine early in the year, the machinery being taken in over the snow, and the drivage of the long tunnel completed to its intersection of the vein. Drifting has been done on the vein from the lower tunnel level with fair results, warranting its extensive exploration. The property has been exceptionally well equipped and handled. The completion of the trail to the property from the Dunwell wagon-road furnishes excellent transportation.

Emperor Mines, Ltd.—This company was organized early this year to develop the *North* and *South Line* groups of claims. Last year a crosscut tunnel was driven 80 feet, cutting a vein that had been traced on the surface for some distance by open-cutting and stripping. The tunnel obtained a depth of 75 feet on the vein, which was then drifted on for 75 feet. Where cut by the tunnel the vein shows from 12 to 20 inches of fair-looking ore on the hanging-wall.

A fine camp has been erected and a lower tunnel started, which with a drivage of 500 feet will obtain a depth of approximately 300 feet on the vein at some distance south of the upper tunnel. So far the development in the upper workings does not warrant the advertised statements that there is $2,000,000 worth of ore in sight, although the property has a fair chance of developing a commercial tonnage of milling-ore.

Superior Mines, Ltd.—This ground adjoins the Emperor Mines, Limited, property and contains the extension of the *Emperor* vein. No work of any account has been done so far.

Victoria Mines, Ltd.—This company's holdings adjoin the *Dunwell* on the north. The *Sunbeam* vein on the *Dunwell* has been traced up to the *Victoria* line and a crosscut tunnel is now being driven to cut this vein.

Mayflower.—This group adjoins the Victoria property on the west and down the hill. The downward extension of the *Dunwell-Victoria* vein would probably enter this property at a considerable depth.

Sunshine.—This group is under bond to Howson & Peterson, who are developing it this season. I will examine it later.

L. & L. Glacier Creek Mines, Ltd.—Operations were resumed on this company's property, situated on the North fork of the Middle fork of Glacier creek, this spring and good progress is being made. Further development has extended the known ore and sorting and shipping was started a month or more ago. A shipment of 25 tons has been sent out and ore is being sorted and sacked at the rate of about 2 tons a day. This ore will run well over $200 a ton and notwithstanding the heavy cost of packing will net the company over $100 a ton. A trail was recommended this spring and has been partially constructed, with the chance that it will be completed through to the mine this fall. The property gives every promise of making a profitable undertaking.

Union Silver Mines, Ltd.—This company was incorporated this year to develop the *Last Chance* group of three claims situated just below the *L. & L.* Some work was done early in the season which I will examine later.

Rush-Columbia Mines, Ltd.—This company was incorporated in April of this year, with its holdings consisting of the *Columbia* and *Gem* groups of claims situated on the Middle fork of Glacier creek. The *Columbia* is one of the old properties of the Stewart camp from which a few tons of high-grade silver ore was shipped in the early days, taken from small surface orelenses. Since that time yearly work has been done by the owners in tunnelling on the vein and open-cutting, showing the *Columbia* vein to be one of great persistence and, so far as known, containing small bunches and lenses of good-grade ore.

Ruby Silver Mines, Ltd.—Nothing new has been exposed on this property since last year's report. Work was started this spring, but was carried on for only a short time and the property closed down.

American Girl.—This group consists of eight claims situated on the south side of Bitter creek, 1,100 feet elevation above the bridge. The showing is a 4-foot quartz vein slightly mineralized with pyrite and a trace of chalcopyrite, carrying low values in gold and silver. The vein is well defined and should be opened up along the surface by stripping and open-cutting to prospect for better mineralization.

Ore Mountain Mining Co., Ltd.—This company was incorporated in December, 1924, and acquired eleven mineral claims, situated on the west slope of Gladstone mountain, belonging to Young & Unwin, who are now in charge of the development-work. Work has been energetically pushed since started early in the spring; a good horse-trail has been built from the Bear River wagon-road to the top of the mountain and a comfortable camp constructed.

The showings at 4,400 feet elevation consist of a number of small parallel quartz veins, sparingly mineralized with galena, in greenstone across a considerable width on either side of a big porphyritic dyke. This belt can be traced on the surface for 1,000 feet or more. A tunnel has been started on one of these small veins on which it is proposed to drift for 100 feet and crosscut the vein belt from the face. The work is warranted. The showings at the camp, 3,450 feet elevation, also comprise a number of small quartz veins showing across a width of 100 feet, in which good values are found. Practically no work has been done except a few open-cuts, but this series of veins could be explored by drifting on an "Iron Vein" from the steep side-hill, below which would obtain a depth of 150 feet by a drivage of 300 feet.

Terminus Mines, Ltd.—Since my last report the crosscut tunnel has been driven through the Shaft vein and is being continued to cut a large quartz vein farther east. On either side of the Shaft vein the tunnel shows a considerable width, in which small stringers of sulphides occur, but not in sufficient amount to make the whole of commercial value. The report of the importance of this, when it was cut early in the year, was somewhat exaggerated. A drift was run to the south on the foot-wall of this belt without important results.

The small dyke, with the small high-grade veins on each side of it showing on the surface and down the shaft for 50 feet, was cut by the tunnel, but without the ore. A drift south on the dyke for about 30 feet showed no improvement and a raise was then driven on it up to the south drift from the bottom of the shaft, getting into the ore near the drift. As there is a good showing of ore in the south drift from the shaft, and apparently improving, it would seem

reasonable to expect to pick up the ore-shoot by further drifting to the south on the dyke on the tunnel-level. The property is just now at the point where further development-work will count.

Vancouver Mines, Ltd.—This company, incorporated in January of this year, acquired twelve mineral claims and fractional claims surrounding the Terminus Mines holdings on three sides. The statement in the prospectus issued by the company that the property lies within a comparatively short distance of the *Premier* is literally far-fetched, for it is about 9 miles. The implied reflected glory of the *Premier* would be very dim before it reached the Vancouver Mines property.

I examined the property in the early part of August and found no high-grade ore. There are several parallel mineralized belts of greenstone. The most westerly of these had a tunnel driven on it some years ago by the old Northern Terminus Company, showing from 6 to 10 feet of practically solid pyrrhotite carrying no commercial values. About 400 feet east of this another tunnel was driven 100 feet by the same company on a slightly mineralized porphyry carrying no commercial values. Other parallel belts can be traced by the heavy red oxidation showing on the surface. At 4,500 feet elevation an open-cut discloses over 6 feet in width of greenstone heavily mineralized with pyrite and pyrrhotite, but carrying no commercial values. Several small cross-veins were noted, but none have been opened up to any extent.

While the showings may be worthy of some development, no work has been done by the company on the property this year.

Rufus Silver-Lead Mines, Ltd.—No work has been done on this property since last year until recently, when a contract was let to drive a crosscut tunnel several hundred feet.

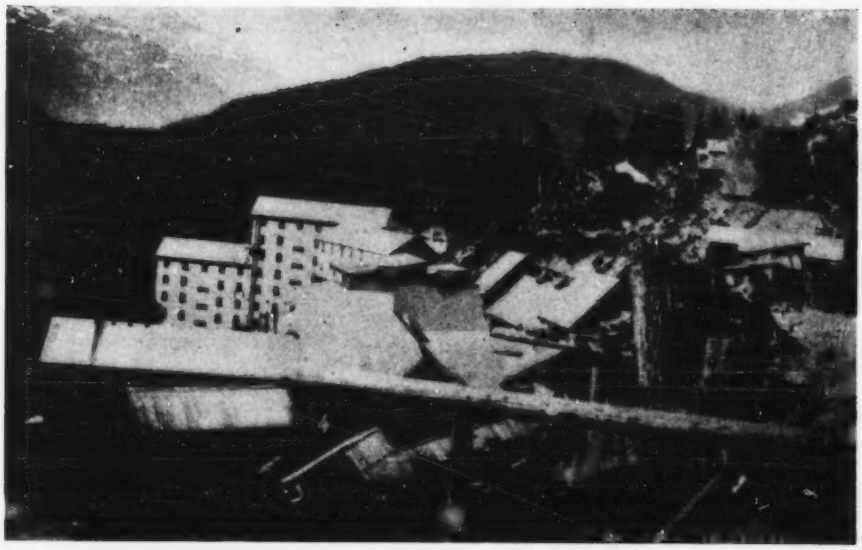
Argenta Mines, Ltd.—The holdings of this company, which was incorporated this year, comprise nineteen claims situated on the north side of Bear river east of the Rufus glacier. Under the management of A. R. Morton, the claims have all been surveyed this season and a considerable amount of prospecting and sampling done, furnishing data on which the property can be intelligently developed. The size and continuity of the different veins and the values obtained from them certainly recommend extensive development-work.

Red Top.—This group consists of seven mineral claims, owned by McNeill & Connors, and is situated on the north side of Bear river east of the Argenta Mines and opposite the George Gold-Copper Mining Company's property. Since last reported on the work done has been the driving of the lower tunnel across the vein, exposing about 25 feet in width of low-grade chalcopyrite ore. The upper vein has not yet encountered the galena vein, for which it is being driven. On the east side of the mountain a quartz vein, heavily mineralized with galena and also showing some zinc-blende and chalcopyrite, has been stripped for over 100 feet, exposing a very likely looking showing from 1 to 3 feet in width. No further work has been done on the upper showing of galena.

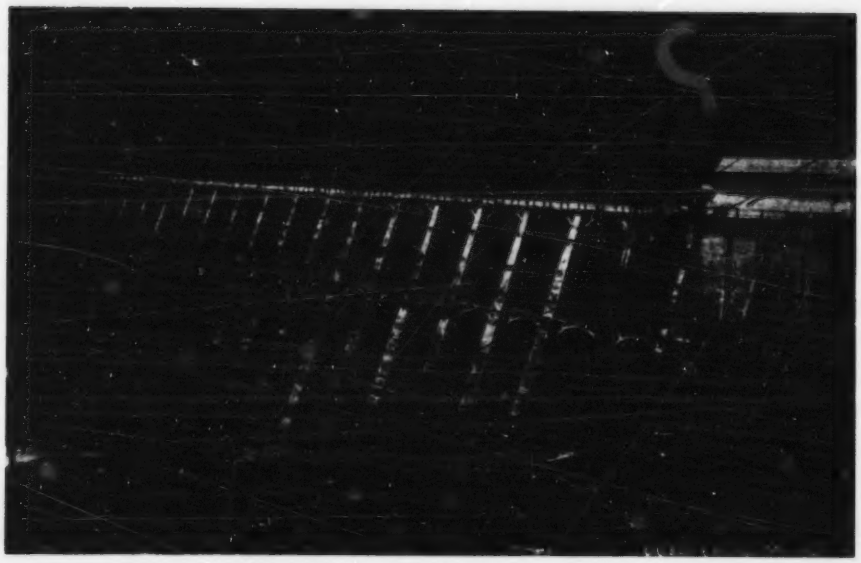
Barite Gold Mines, Ltd.—This company was incorporated in March, 1924, and acquired the three mineral claims—*Barite*, *Barite No. 1*, and *Hub*—situated on the top of the mountain above the *Red Top* group and Argenta Mines ground. I examined the property for the first time on August 8th of this year and found that statements made in the company's prospectus did not tally very closely with actual conditions on the property.

There is at 5,000 feet elevation a belt about 30 feet in width, in which occur small, short veins of barite running in all directions. The 30-foot tunnel mentioned in the prospectus is an open-cut about 6 feet wide ending in a tunnel about 6 feet long. This work shows a flat vein of barite lying on the surface and another, a few inches in width, down the face of the tunnel, neither showing any sign of metallic minerals. No valuable minerals could be found in any of these small veins on the surface, except in one place where a hole had been dug about 2 feet deep and about 3 feet long, showing a vein about 14 inches wide, on either wall of which there is a few inches of galena assaying 29 per cent. lead and 13 oz. silver to the ton. This would be worthless even on tide-water and therefore is of no value at 5,000 feet elevation and 22 miles from tide-water. The *Red Top* trail has been extended to above timber-line on this property.

Enterprise.—This group of seven claims is owned by L. George and is situated on the north side of Bear river near the divide; it has a copper-belt running east and west through it. Fine slabs of chalcopyrite are found in the slides, but no work of consequence has been done towards exploration. Farther west some float of high-grade silver ore has been found, but has not been



Premier Gold Mining Co.—Mill Plant.



Granby Cons. M.S. & P. Co.—Power-dam at Anyox.

definitely found in-place. A good trail was built to the showings this summer by the owner which will facilitate development.

Murdock Group.—Some very promising showings of galena have been reported on this property, which lies just over the Bear River divide on the Nass slope, by Jim Douville, who has been doing the assessment-work for several years.

George Gold-Copper Mining Co., Ltd.—This company was formed this year to operate the *George* copper property on the south side of Bear river, about 6 miles up from the end of the wagon-road. An excellent horse-trail has been completed to the showings on the hill. There are some fine exposures of chalcopyrite in three veins on the property. In my opinion it is the most attractive copper proposition in the district.

Independence Gold Mining Co., Ltd.—The main tunnel has been driven over 500 feet and when I examined the property on August 4th it had been in what was termed the new strike of ore for 40 feet. At 460 feet from the portal of the tunnel the first native silver was noted, though drifting had been in low-grade ore for some time. The native silver occurs in very thin films on the fracture-seams in the ore and a very careful sampling would be necessary to prove just what improvement it makes in the value of the ore. I think it would be a difficult matter to sort out a shipping-grade ore, but it will probably raise the mine-run ore to a fair milling grade, which will be of great importance to the property. This find is very encouraging when the fact that it is 400 feet below the surface is considered. This ore is remarkably similar to the *Toric* ore of Alice Arm.

Dalhousie Mining Co., Ltd.—This company was organized in May and took over the *Dalhousie* and *Rock of Ages* groups on the west side of Bear river opposite Bitter creek. The only work done this year was the building of a trail part way up the hill from Bear river. It is a property deserving a lot of development-work.

United Empire.—This property is situated at an elevation of about 2,700 feet above the main Bear River bridge on the west side of the river. It was taken under option last fall by A. B. Trites and some tunnelling done during the winter. Work was resumed this spring and continued until about August 1st, when Mr. Trites relinquished his option.

There are two fairly good showings, the upper vein having from 1 foot to 20 inches of shipping-grade ore and the lower vein where stripped on the surface showing from 2 to 4 feet of heavy galena. Crosscut tunnels were being driven to cut these veins at the time of my visit to the property.

Bayview Mining Co., Ltd.—This company was organized in March and acquired the two mineral claims, *Bayview No. 1* and *Bayview No. 2*. The claims are situated at an elevation of approximately 3,800 feet above the Bear River bridge on the west side of the river and above the *United Empire* group.

Work has been carried on continuously, since starting early in June, under the direction of Bill Irwin and very satisfactory developments have resulted. A new cross-vein was discovered which produced several tons of shipping-ore from exploratory work. Later work on the main vein higher up the mountain is opening up some good shipping-ore. A shipment of a few tons has been sent to the smelter as a sample. There is every indication that the property will be able to make continuous small shipments of fairly high-grade silver ore, for which purpose a tramway from the mine to the valley is being planned.

SALMON RIVER SECTION.

The Salmon River section is undergoing its crucial test this year. There are four properties under exploration, the results of which will to a very great extent decide the mining future of the Salmon valley for some time to come. These are the B.C. Silver, Bush Mines, Big Missouri, and Forty Nine. The failure of the Forty Nine and Big Missouri would retard the upper Salmon indefinitely and the success of either or both will assure it a wonderful development throughout.

Premier Gold Mining Co., Ltd.—This company has this year paid two quarterly dividends, each of 8 cents a share, totalling $800,000. The mine and mill have been under continuous operation throughout the year with about normal production.

The outstanding feature for the district is the fact that the company is doubling the capacity of the concentrator, which will increase it to 400 tons a day, and is also doubling the capacity

of its power plant. The enlargement of the power plant is about completed and the foundation has been laid for the addition to the mill, the construction of which will be rushed to completion before the winter. A fuel-oil tank of 1,000,000 gallons capacity is under construction at the dock.

B.C. Silver Mines, Ltd.—This company has done an immense amount of diamond-drilling from the underground workings. The results of this work this year have been so favourable that the workings are now being extended to thoroughly explore the ore-bodies indicated by the drilling.

National Silver Mines, Ltd.—This company has undertaken the development of the property of the Bush Mines, Ltd., situated north of and adjoining the B.C. Silver. To this end O. B. Bush reopened his old camp, built a first-class trail from the B.C. wagon-road to the camp, and put a diamond-drill on the ground early in the season.

Drilling has been continued steadily for the past two months, but at the time I have no information as to the results of the work, other than that Mr. Bush states that, on the whole, it is satisfactory.

B.C. Bonanza Mines, Ltd.—This company was incorporated the latter part of May and acquired the *Spider* and *Web* groups of mineral claims, situated north and east of Long lake, in the upper Cascade Creek valley. The *Spider* property was bonded some years ago by the Algunican Development Company, a Belgian syndicate, which did a lot of underground work and some diamond-drilling.

There are four or five veins on the property, one in particular showing high-grade silver ore on the surface. A tunnel was driven 700 feet on another small parallel vein and a crosscut driven from it under the high-grade ore without locating the ore. Some small lenses of high-grade ore were encountered in the long tunnel and it is this ore that has been sorted from the dump and shipped by the present company. Some further work is being done on the surface in tracing the high-grade vein and some ore is being won from this work. The property warrants extensive development and has a good chance of making a small, profitable undertaking.

Silver Tip Mining Development Co., Ltd.—This company was incorporated in May and acquired five Crown-granted mineral claims on Silver creek, in the upper Salmon valley. The surface showing on this property is a very encouraging one, consisting of a quartz-galena vein from 2½ feet wide in one cut to 4½ feet in another cut 50 feet west. There is a foot or more of heavy galena that will assay $100 a ton or better and the remainder is quartz heavily mineralized with galena, zinc-blende, and a little pyrite. Silver sulphides show all through the ore. The whole vein would make an excellent milling-ore with a concentration ratio of 5 or 6 into 1, yielding a high-grade concentrate. Shipping-ore could be mined from the surface, but the vein dips into the creek at a depth of about 15 feet and the tonnage would therefore be limited. The vein lies between slate on the hanging-wall and a big porphyry dyke on the foot-wall. Owing to the nature of the ground no appreciable depth is obtainable by drifting in on the vein and a crosscut tunnel has therefore been started farther down the creek, which, with 200 feet of drivage, will obtain about 90 feet of depth on the vein. In all it is a very favourable-looking little property.

Silver Crest Mines, Ltd.—This company was organized in 1919 and owns eleven Crown-granted mineral claims on the east slope of Dillworth mountain and adjoins the *Silver Tip* on the north. The general rock formation is volcanic tuffs intruded with porphyry dykes running in a general north-westerly direction, the whole overlain with slate at a higher altitude.

The showing consists of a number of stringers of mineralized quartz, carrying high silver values, in one of the porphyry dykes and striking with it. These have been exposed by open-cutting for a length of 200 feet and a tunnel is now being driven to get under them at a depth of about 80 feet. The tunnel was in 120 feet without encountering any ore. I was not very favourably impressed with the possibilities here.

Forty Nine Mining Co., Ltd.—The property of this company, lying on the west slope of Dillworth mountain, is now being explored by the Premier Gold Mining Company, Limited. This is a good exemplification of intensive prospecting. There are three gas-driven diamond-drills, each working two shifts, one on the *Forty Nine* croppings, one on the *Chicago* croppings, and one on the *Occidental*. A compressor plant has been installed, taken over the top of the mountain early this spring on the snow, on the highest point, from which air-lines are run to any part of the property for machine-work. It is expected that conclusive data will be obtained before snow falls. No information is yet available.

Northland Mining Co., Ltd.—This company was incorporated in January, 1925. Its property comprises the *Troy* group of nine mineral claims near Summit lake, at the head of the Salmon River glacier, and about 26 miles from tide-water. Work was started in June with a crew of six men and at the time of my examination, August 18th, considerable work had been done, mostly in open-cutting along the veins and the driving of a 20-foot crosscut tunnel. There are two quartz veins, one on each side of a broad belt of argillite running S. 75° E. (mag.), with the greenstone country-rock on the north and a parallel porphyritic dyke on the south between the argillite and the greenstone. The north vein is therefore on the contact between greenstone and argillite and the south vein between the argillite and the dyke. At 3,600 feet elevation on the north vein an open-cut shows the vein to be 10 feet between walls, of which 4 feet in width is mineralized. About 2 feet across the bottom is fairly well mineralized, showing galena and traces of grey copper, with small amounts of high-grade ore. This is where all the sampling was done on the north vein. There are fourteen cuts on this vein, tracing it east up the hill for several hundred feet, all showing more or less quartz but no mineral.

On the south vein, about 80 feet from the north vein, which follows the north wall of the canyon and is in the creek lower down, the lowest open-cut shows about 2 feet of vein on each side of a small dyke, in which there is a little ore. Farther up the canyon some distance another cut on this vein shows about 5 feet of vein, of which 2 feet is fairly well mineralized quartz, in which the stringers of high-grade ore would aggregate probably 6 inches. This ore-shoot has been stripped, showing it to be altogether about 30 feet long, tailing out into stringers of quartz on either end. Several dykes cut diagonally across the formations and may carry a little mineralization with them, but I saw nothing of importance.

Salmon River High Grades, Ltd.—This company was organized in May, 1925, to develop the *Daisy* group of seven mineral claims, owned by Pat Benson and associates, and situated near Summit lake, at the head of the Salmon River glacier. The rock formation is a schistose rock which has been most intensely compressed and folded. In this formation there are a few small stringers of quartz, in which is found an occasional patch of grey copper assaying high in silver. Any development to obtain depth would have to be sinking. From surface indications I could not advise any further work on these showings.

Work has been done on the three properties on the west side of the Salmon River glacier opposite the *Forty Nine;* they are Eldorado Gold Mines Consolidated, Limited; the Cronholm-Bartholf Mines, Limited; and the *Outland-Silver Bar* property.

Indian Mines Corporation, Ltd.—Further diamond-drilling was done early in the year from the lower tunnel, but nothing of an encouraging nature was found. Over 100 feet of drifting was done on a soft gouge lying between two dykes, which of course proved disappointing. During the winter 36 tons of galena ore was mined and sent to Swansea, Wales, as a test shipment, which may lead to further mining.

Alaska Canadian Consolidated Gold Mines, Ltd.—This company was organized in December, 1924, with a capitalization of $3,000,000, with shares at $1 par value. I have not a list of the holdings, but I believe they include the *Woodbine*, *Woodbine Fr.*, and *Kitchener* claims, adjoining the Premier Extension Gold Mining Company, Limited, ground. Some work was done this summer by way of open-cutting a vein on the *Big Missouri* trail about a mile up from the high Cascade Creek bridge. Good values are said to have been obtained here across a width of 4 feet. Higher up the hill another vein has been exposed by open-cut and tunnel across 35 feet. The rock is pyritized across the full width, but there appears to be about 15 feet in the centre that is more heavily mineralized, especially along the bottom of the cut, where an average of $15 to the ton in gold and silver is claimed.

I have not, as yet, had time to get into the northern part of my district. I am reliably informed that some gold is being taken out of Gold Pan creek and that there are a number of prospectors in the country. This field will be covered by a separate report. I know there is considerable prospecting being done adjacent to the Stikine river and more especially up the Clearwater.

In the Atlin Division the two properties, Engineer Mines and Atlin Silver-Lead Mines, have been working all season. Reports are satisfactory from both. I will examine them later this year for the Annual Report. The placer output in the Atlin section will be about normal.

NORTH-EASTERN MINERAL SURVEY DISTRICT (No. 2).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

By DOUGLAS LAY, RESIDENT MINING ENGINEER.

GENERAL REMARKS.

The lode-mining industry has made distinctly satisfactory progress to date and widespread renewal of activity is apparent.

The most noteworthy event was the resumption of operations by the Duthie Mines, Limited, at their *Henderson* property on Hudson Bay mountain in June. Shortly thereafter this company commenced to ship ore at the rate of about 6 tons daily, with the expectation of increasing this rate somewhat in the fall.

Towards the end of July the *Fiddler* group at Dorreen commenced a campaign of development-work with a force of twelve men.

The New Hazelton Gold Cobalt Mines, Limited, commenced small-scale development-work on the Rocher Déboulé mountain in June, in the course of which ore is being extracted.

Development-work was commenced at the *Mohawk* group, Four-mile mountain, in June by W. S. Harris and associates, and small-scale mining operations were subsequently started and ore extracted.

More recently, W. S. Harris and associates resumed small-scale operations at the *Silver Cup* and *Sunrise* properties on Nine-mile mountain. It is their intention to also resume operations at the *American Boy* on this mountain very shortly, and they hope also to start the *Barber* property on the same mountain.

At the *Lucky Luke* property at Usk L. E. Moody is engaged in getting out a car of ore.

In the Driftwood Creek area of the Babine mountains, active development-work is being carried on at the *Silver King* group by P. J. Higgins. Development is also being carried on at the *Hyland* and *Rainbow* groups, both these being under option.

The Silver Island Mining Company, Babine lake, started up active development this spring with a force of twelve men. The Taltapin Mining Company in the same district was also engaged in active development during the winter and early summer.

The *Cascade* and *Groundhog* groups, Hudson Bay mountain, employed three men constantly on development. The owners are A. S. Millar and associates.

It is gratifying to note that considerable interest in the North-eastern District has been evinced by field engineers and general and specific examinations have been made by such.

A. H. McLoughlin, accompanied by O. C. Thompson, representing the Porcupine Goldfields Development and Finance Company, examined the property of the Babine Bonanza Mining and Milling Company, the *Debenture* group, and the *Schufer* group, and also took a trip into the Manson section.

Charles T. Cabrera employed several men investigating placer possibilities along the Skeena, in the Manson section, and in the Cariboo Division at Cedar creek, and himself personally carried out the sampling of certain gravel-bars in the Skeena river, in the immediate vicinity of Hazelton, where he has staked several leases.

Alfred R. Whitman, of the University of California, accompanied by A. H. Case and H. Heide, made a reconnaissance of the central portion of the Omineca District, including portions of the Manson section.

L. Levensaler, of Seattle, Wash., made an examination of the property of the Babine Bonanza Mining and Milling Company.

Mr. Gross examined properties in the vicinity of Usk, acting on behalf of the Belmont-Surf Inlet Mines, Limited.

C. A. Banks and C. North examined the *Schufer* group; Arthur W. Jenks examined the Babine Bonanza Company's property; and J. H. Rodgers examined the *Silver Standard*, Hazelton.

The attention of field engineers and any others interested is drawn to the fact that there exist in the North-eastern District many promising prospects, to which attention is more particularly called in the body of this report. Some of them are ideally situated so far as transportation and general mining facilities are concerned; many of them, although situated some miles from railway points, nevertheless offer no serious objection on the score of transportation and are free from any purely mining problems connected with extraction. These properties show good values on the surface and should, generally speaking, appeal to the operating engineer.

While the lode production for the year 1925 will probably in the aggregate be less than that of 1924, it should be borne in mind that during the first half of last year the Federal Mining and Smelting Company was actively operating several properties, and its sudden cessation of operations in August, 1924, did not by any means act as a stimulus to mining development generally. A promising feature of the current year's production is that there is every prospect of the joint efforts of the individual small-scale operators reaching a noteworthy tonnage.

The placer production for 1925 will be considerably less from the hydraulically operated mines owing to the shortage of water caused by the unusually dry season. The output of the Cedar Creek Company will also be materially less, as the property was inactive during the first half of the year. Offsetting these decreases, a considerable output is expected from the operations of the Kafue Copper Development Company's dredge near Barkerville. It is expected, therefore, that the total placer-gold output of the district for 1925 will be somewhat greater than in 1924, when a production of $250,000 was made.

Early in July Hazelton was thrown into throes of excitement by the discovery of coarse placer gold on the Babine river about 5 miles east of the Indian village of Kisgagas, some 50 miles north of Hazelton. The discoverers were Messrs. Burke and Ek. A number of claims were staked, but comparatively few were recorded. All save one or two men have left the spot. It was not possible for the writer to investigate the scene of the strike, but C. Ek, one of the discoverers, who has discontinued working, temporarily at any rate, informed the writer that the best he and his partner made in any one day was $5 each, and that their average takings would be considerably less than this. He was of the opinion that while prospects for larger-scale operations were good, small-scale operations with "Long Tom" or rocker would hardly result in wages.

The Telkwa Collieries Company is making preparations for an active winter campaign and it is expected the output this year will be doubled.

Substantial aid to the mining industry has been given this year by the Mines Department in connection with assistance in building various roads and trails at many points in the district. In many cases the entire cost has been borne by the Mines Department. The aggregate cost has been considerable; nevertheless, the beneficial effect of such a policy is being felt more and more each year as the various sections of the district become more accessible.

Dr. Geo. Hanson and staff, of the Geological Survey of Canada, were engaged in an examination of Hudson Bay mountain and the region in the vicinity of Usk.

NEW DISCOVERIES.

Among new discoveries in the Omineca Mining Division during the year may be mentioned the *Banner Homestake* group on the south side of Chimdemash creek; *Calendar* group in Centre basin, Chimdemash creek; at the *Lakeview*, Grouse mountain; and the *Cornu Copia* group, Grouse mountain. These are more particularly described in the body of this report.

In the Cariboo Mining Division important discoveries of auriferous quartz are reported in the near vicinity of Prince George and Barkerville.

Owing to the very large number of applications for assistance from the Department of Mines in connection with roads and trails, and to certain special investigations, many of which have been of an urgent nature, it has not always been possible to examine the various portions of the district in the best way from the pure economy of time standpoint. At the time of compilation of this report the writer has only been able to visit the most active portions of the Omineca Division, and has not yet inspected the other divisions of the district.

The writer desires to express his thanks to the prospectors, operators, and mining men of the district for the many courtesies shown him.

OMINECA MINING DIVISION.

SKEENA SECTION.

Usk.

Small-scale operations are being carried on at several properties in the immediate vicinity of Usk.

Lucky Luke.—This property, owned by L. E. Moody and R. Lowrie, is very well situated, being only about 1½ miles distant from Usk, and the lowest workings being only somewhat over 500 feet above the Canadian National Railway track, from which an excellent trail leads to the property. Briefly, the workings consist of two tunnels approximately 55 feet vertically apart, connected by a raise. A very nice showing of ore exists in the immediate vicinity of the raise, a width of upwards of 12 inches of solid copper mineral, mainly bornite, with lesser amounts of copper pyrites and pyrite, with a more scattered mineralization not fully exposed in both foot and hanging walls at a point immediately above the lower tunnel. It is reported that in the latter nice ore was continuous for a length of about 90 feet. At the end of this working the ore was abruptly terminated by a fault. However, no great difficulty may be experienced in again picking up the vein, and the owners are at present confining themselves to stoping the ore already developed. Towards the end of 1924 24 tons of ore was shipped, smelter returns from which gave assays of: Copper, 22.5 per cent.; silver, 12.7 oz.; gold, 0.73 oz. to the ton. The ore now being stoped may be expected to assay much the same as the foregoing. The owners expect to ship about 30 tons in the more immediate future.

Cordillera Group.—This property, owned by the Kitsalas Mountain Copper Company, adjoins the *Lucky Luke* on the east. This company expects to resume developments shortly. A very large amount of crosscutting has been accomplished by this company in relation to actual development in the vein system. This group is ideally situated so far as transportation is concerned, the lowest workings being practically on the railway-track.

The *Marcena* group, which adjoins the *Cordillera* group on the east, is reported to have a promising showing of mineral and the vein on it is regarded as being the continuation of part of the *Cordillera* system. All the above-mentioned properties show free gold in the prevailing copper mineralization.

The *Diadem* group, situated 2½ miles from Usk, at a very low elevation, is also nicely situated so far as transportation facilities are concerned. The owners are about to do a little work on this property.

The *Lucky Jim*, owned by Fred Forrest, situated on Kleanza creek about 13½ miles from Usk, is reported by the owner, who is working on it himself, as looking very well.

The *Valhalla* and *Kleanza* groups, owned by the Skeena Lumber Company, distant some 4 miles from Usk, have been carrying on small-scale development-work under the supervision of John Williman, of Usk.

Chimdemash Creek–Silver Basin.—By means of a grant from the Mines Development Fund the trail from Usk to Silver basin, at the head of Chimdemash creek, was completed during the summer. This trail is approximately 14 miles in length and affords ready access to the properties in Silver basin. The town of Usk is approximately 300 feet above sea-level and the elevation of the end of the trail in Silver basin is 3,800 feet above sea-level.

J. D. Wells is carrying out small-scale operations on his *Silver Basin* and *Silver Crown* groups, which were fully described in the Report of the Minister of Mines for 1924, since when no material change has taken place.

The *Coffee Pot* group, consisting of eight claims, situated on the north side of Silver basin, owned by A. Stewart and partners, is the scene of a recent discovery. At an elevation of about 5,150 feet two more or less parallel fractures of an average width of about 1 foot in the volcanic rock show a promising mineralization. One fracture shows some nice stringers of solid bornite and the other fracture is mainly mineralized with galena, copper pyrites, and specular iron. Copper-stains are also much in evidence.

A recent discovery on the south side of Chimdemash creek, about 3 miles south-west of the Silver basin, is the *Bonner Homestake* group, comprising five claims, owned by L. E. Moody and G. T. Mills. At an elevation of 4,150 feet a fracture in the volcanic breccia, striking about N. 65° E. (mag.), dipping southerly, shows a heavy copper-stain over a width of about 20 feet. About 100 feet in a north-westerly direction a quartz-porphyry dyke outcrops and appears to

be striking at right angles to this mineralization. A small amount of galena was noted and a little copper pyrites, but the mineralization consists mainly of malachite. There are said, by the owner, to be other good exposures on this property, but as the owner was not present at the time of the writer's examination these were not seen. It is to be hoped that silver values will be found to be good at this property.

Another discovery worthy of mention is that of the *Calendar* group in Centre basin, which is the basin at the head of the Centre fork of Chimdemash creek. There is no trail at present to this basin and it has apparently not been prospected to any extent. Mineral discovered on the *Calendar* group is said to consist of galena showing grey copper. The owners of the *Calendar* group are B. Shannon and S. A. L. Davis, who expect to do further work on their claims before winter. It is anticipated that the Department of Mines will assist in building a trail into this basin from the main Chimdemash trail this fall, so that very shortly this promising region should be rendered readily accessible.

The attention of examining engineers and others interested is drawn to the fact that the town of Usk, on the Canadian National Railway, is a centre from which all the above-mentioned properties can be rapidly and easily reached.

Legate Creek.

From the town of Pacific, a divisional point on the Canadian National Railway some 13 miles east of Usk, an excellent pack-trail 12 miles in length leads to "Brown's Cabin" at the head of Legate creek, at an elevation of 1,700 feet. As the elevation at Pacific is somewhat under 400 feet the grade of this trail is therefore excellent, rising at the rate of but little more than 100 feet a mile. "Brown's Cabin" forms an excellent stopping-place, from which convenient short trips may be made to the various properties in the vicinity. The hospitality of the owner, J. Brown, is freely extended to all. The chief properties are the following:—

M. & K. Group.—This group is situated on the north side of the East fork and is owned by M. Orr and partners. A discovery of importance has recently been made on this property which is known as the "Lower Showings." The "Upper Showings" comprise the older portion of the property, which has been fully described in previous Annual Reports for the years 1916, 1917, and 1919.

The "Upper Showings" are in volcanics, but the "Lower Showings" are in diorite, at an elevation of 3,475 feet. At this point three open-cuts expose a well-mineralized fissure in diorite, the latter rock being bleached on the hanging-wall side near the vein. The present open-cuts prove a length of about 100 feet, but a much greater extension is to be expected. The strike of the fissure is N. 15° W. (mag.) and the dip is westerly at about 50° to 55°. The centre open-cut shows a width of 3 feet, well mineralized with galena, chalcopyrite, a little grey copper, and some specular iron.

On the south side of the East fork is a large mass of diorite, which is quite likely continuous between the *M. & M.* and the "Lower Showings" of the *M. & K.* The present exposure on the *M. & K.* is well worth following up and other similar fissures should be looked for in the diorite. Such, involving no difficult mining problems, should appeal to the operating engineer.

M. & M. Group.—This group is situated on the south side of the East fork and is owned by Roy Moore. Three very clearly defined fissures in the diorite country-rock, striking approximately N. 70° W. (mag.) and dipping south at 55° to 60°, can be traced for long distances on the surface, extending in an easterly direction from the principal points of exposure. The most northerly can be traced for about 3,000 feet. These parallel fissures are close together, the maximum distance between any two not exceeding about 75 feet. The width of the most northerly is about 5 feet, that of the middle fissure somewhat more, while at one point the most southerly fissure is 20 feet in width. The two most southerly are exposed along their dip by the natural agencies which have formed the Main Creek gulch. At various points along their strike and dip exposures show a good mineralization.

Prospecting has been practically entirely confined to the most northerly fissure, which has been stripped on the surface for a considerable distance, showing good mineralization consisting mainly of galena, grey copper, and malachite. Native silver was also noted at one point. The elevation of this exposure is 4,700 feet. The fissures show bands of quartz containing the minerals mentioned, the remainder of the filling being altered diorite. This is characteristic of all the diorite-fissures inspected in this district.

This prospect presents a combination of high silver values, absence of mining problems, and favourable topography, which should appeal to field engineers, to whom it is commended.

At the head of the Main fork is situated the *Independence* group, owned by J. Burns, on which is a well-defined shear-zone in andesite, exposed by various open-cuts. Mineralization consists of small amounts of copper minerals, including grey copper. At an elevation of 4,900 feet a drift has been run for a short distance. The face is not, however, very well mineralised. Development hitherto has been purely superficial, but samples taken from surface exposures have disclosed good silver values and the fissure is a strong one. The strike is N. 50° W. (mag.) and the dip is to the south-west at a steep angle. An excellent trail some 3 miles in length leads to the property from "Brown's Cabin."

The *Hidden* group, owned by J. Burns, is situated in the centre of the basin at an elevation of about 3,700 feet. This is a fissure in diorite, very similar to those of the *M. & M.* group. It is exposed at two points about 1,000 feet apart. At one point the vein is stripped for a length of about 150 feet. Mineralization appears to be mainly confined to a seam of quartz on the hanging-wall about 6 inches in width, which is well mineralised with grey copper, galena, and blende; copper-stains are also in evidence. The fissure is several feet in width and the general appearance is hopeful and warrants further investigation.

The *Regina* and *Cabin* groups are also situated on the Main fork, but time did not permit of inspection. Assessment-work is being performed on these by the owners, J. Brown and partners.

The *Imperial* group, owned by J. Brown, M. Orr, and associates, is situated on a tributary of the South fork. At an elevation of 2,700 feet, in the immediate vicinity of a contact between three different kinds of country-rock—namely, rhyolite, volcanic breccia, and a dioritic rock—there occurs a heavy mineralization of specular hæmatite and copper pyrites 6 feet in width. This mineralisation appears to follow the line of the rhyolite-breccia contact and is distant from the latter about 125 feet in an easterly direction. The exposure is by means of an open-cut, below which is a short crosscut tunnel in the breccia about 25 feet in length. Obviously work should be confined to following the mineralization itself. The copper content of the mineralization is obviously very considerable, but no assays of samples taken are to hand at the time of writing.

The *White Bear* and *South Fork* claims, owned by W. L. Jordan and J. R. Smith and situated at the head of the South fork, are silver-lead properties. The owners are doing assessment-work. The *Grey Copper*, between the Main and South forks, is also owned by the same parties. An inspection of the last three mentioned properties was not made owing to lack of time.

Frisco Creek.

Frisco creek, a tributary of Legate creek, flows into the latter from the north at a point about 1½ miles below "Brown's Cabin." At the head of Frisco creek is situated the *Frisco* group of three claims owned by M. Orr, who has been doing assessment-work.

Cedarvale.

Steve Young is reported to have a good showing of silver-lead ore at his property above Cedarvale, and A. S. Gray is reported to have a good showing of copper pyrites on his *Wilson* group.

Fiddler Creek.

The *Fiddler* group, situated on Knauss creek, a tributary of Fiddler creek, is distant 4½ miles from Dorreen, a station on the Canadian National Railway 125 miles east of Prince Rupert. It has been fully described in previous Annual Reports, particularly those of 1916 and 1924.

Towards the end of July operations were resumed with a force of twelve men, work being confined solely to development, the continuation of the raise in No. 1 tunnel, and the westward extension of No. 1 tunnel. Good ore was struck in the raise immediately after the resumption and was continuous up to a point 70 feet above the level, with every prospect of further continuation.

No. 1 level was continued west for 58 feet in promising mineralised quartz. To date the results of development have been distinctly satisfactory. There is on this property another vein, showing on the surface fairly solid galena and blende, which will shortly be prospected.

HAZELTON SECTION.

It is very gratifying to be able to report a revival of activity in this section, there being no less than four properties under small-scale operation at the present time, with the prospect of two more being started shortly. Further, in every case these properties are either getting out ore or have every prospect of doing so shortly. This revival appears to be primarily due to the activities of W. S. Harris. At any rate, he is in charge of operations in every case.

It is to be regretted that the *Silver Standard* still remains inoperative.

Four-mile Mountain.

The *Mohawk* group, under the management of W. S. Harris, has been carrying on some development-work which has for its objective the connection of the lower crosscut tunnel with the shaft sunk from the surface above, and which is expected to hole through very shortly, and also underhand stoping has been started on the surface. About 30 tons of ore has been sacked, carrying good silver values, contained in galena and blende. A considerable amount of grey copper is present.

Nine-mile Mountain.

At the *Silver Cup* a force of six men is employed in ore-extraction. Some very nice showings of ore exist on the surface above and below No. 1 tunnel and in the latter. The ore is of a solid lead-zinc type, showing a considerable amount of antimony in the form of jamesonite.

At the *Suarise* property W. S. Harris has a contract to run 200 feet, possibly 300 feet, of drift, which it is anticipated will yield about 60 tons of ore.

It is the announced intention of W. S. Harris to start up the *American Boy* before winter, and possibly also the *Barber* property, the latter being in Silver Cup basin.

Rocher Déboulé Mountain.

New Hazelton Gold Cobalt Mines, Ltd.—During the summer a drift has been run on the main vein at a point about 300 feet below the apex. To date about 120 feet has been run, in the course of which some 30 tons of ore has been taken out which it is estimated will carry 6 oz. gold to the ton.

Brunswick Group.—The owner, J. Miller, stayed on his property alone all last winter and carried on development-work, which yielded several tons of ore.

Brian Boru.—The owner, J. Creagh, has worked hard on his property during the summer.

TELKWA SECTION.

Hudson Bay Mountain.

Of immense importance to the district was the resumption of operations by the Duthie Mines, Limited, at the *Henderson* property at the end of June last under the management of J. R. Turner. Shipments were resumed very shortly thereafter at the rate of about 6 tons daily, a force of some thirty-five men being employed. Full descriptions of the property will be found in the 1922, 1923, and 1924 Annual Reports. Two hopeful features of the present operations are the following:—

(1.) A trial winze sunk 12 feet below the Compressor level has disclosed one seam of good ore 10 inches in width and another 4 inches in width. Further trial winzes will be sunk a short distance, after which sinking will be resumed at the most promising point.

(2.) Since the resumption of operations good ore has been found in the hanging-wall of several stopes immediately above the Compressor level. Further, appearances in the mine and actual survey strongly suggest the possibility that the latter portion of the Compressor level followed a foot-wall branch vein and that the main vein may be found in the hanging-wall in this region. This can be, and will be, readily proved by crosscutting.

Shipments since the resumption of operations to January 1st next are expected to reach a total of 1,000 tons. The ore is high-grade silver-lead and the net value of smelter returns is about $100 a ton. The sudden restoration of this property is a tribute to skilled and experienced management.

It is the intention of Mr. Turner to resume development on the adjoining *White Swan* group almost immediately.

Aid to a liberal extent was given by the Department of Mines towards improving the wagon-road between Smithers and the *Henderson* mine.

The *Victory* and *Empire* groups, belonging to Donald C. Simpson, attracted the attention of examining engineers, as did also the *Schufer* group.

Useful surface development took place on the *Yukon* and *Evelyn* groups by the respective owners.

On the *Cascade* and *Groundhog* groups persistent development-work was carried out by A. S. Millar and associates in exceedingly hard country-rock, and much credit is due them for perseverance in the face of difficulties.

The *Canadian Citizen*, owned by T. Costello, is situated on the wagon-road to the *Henderson* mine and is distant only 2 miles from Smithers. An open-cut and small winze at an elevation of 1,975 feet expose a vein 4 feet 6 inches in width in andesite country-rock. The latter is mineralized beyond the vein-walls. Mineralization consists of bornite, azurite, and malachite. A sample taken across 4 feet 6 inches assayed: Gold, trace; silver, 4 oz.; copper, 3 per cent. The copper mineralization is promising and it is unfortunate that silver values are not higher.

Driftwood Creek.

Aid was given by the Department of Mines this summer towards the improvement of the Driftwood Creek trail, which leads into the Babine range from the end of the motor-road from Smithers, which latter terminates some 10 miles from Smithers. This trail affords an excellent means of access to the Babines.

The *Silver King* group has been under active development by P. J. Higgins, a force of four men having been constantly employed. Development has consisted in driving a crosscut to penetrate the vein at a depth of 36 feet vertically below a drift 100 feet in length, which latter carried excellent values. Mineralization in the drift consists of galena, blende, grey copper, and some native silver. The crosscut is now in 140 feet from the surface; a further advance of 80 feet is required to reach the objective. Prospects for this property appear to be distinctly hopeful and operations are being conducted in a thoroughly miner-like manner. This property adjoins on the west that of the Babine Bonanza Mining and Milling Company.

The *Hyland* group, owned by Martin Cain and T. King, is under bond to Messrs. Gale and associates. The latter are engaged in crosscutting from a tunnel previously run parallel to the strike of the vein. Surface showings are excellent, mineralization consisting of galena, blende, grey copper, azurite, and malachite, with high values in gold and silver. The vein is in the immediate vicinity of a contact between slates and rhyolite.

The *Little Joe*, owned by Martin Cain and T. King, has a showing of high-grade silver-bearing grey-copper ore. A flat-dipping vein, 30° to 45° westerly dip, striking north-west and south-east, has been followed by an adit-tunnel on the contact of rhyolite and schist. At 65 feet from the portal ore was met with and was continuous thereafter for practically 100 feet. The pay-streak varied in width from about 2 inches to 2 feet, but was at all times well mineralized with grey copper. Upwards of 10 tons of high-grade ore resulted from this development. The comparatively soft schistose hanging-wall country-rock should greatly facilitate mining operations.

On the *Iroquois* and *Shamrock* groups the respective owners, Messrs. McPhee and J. Carson, were actively engaged during the summer.

On the *Harrar* group the owner was engaged in constructing a cabin and in assessment-work during the summer.

Harvey Group.—C. G. Harvey has been engaged in driving a crosscut tunnel having for its objective the penetration of the downward continuation of the vein exposed in a shaft at a point approximately 100 feet vertically above the crosscut. The indomitable energy of Mr. Harvey at his time of life is an object-lesson to others. On this property are several strong shear-zones in the andesite country-rock. Mineralization is essentially copper, principally bornite and chalcopyrite. It is especially to be noted that silver values are good, being due to the presence of grey copper. The property is conveniently situated, being not much over 12 miles distant from Smithers, on the east slope of Driftwood creek. Workings are below timber-line. A good trail leads to the property from the end of the motor-road from Smithers. High silver values and other features make this property attractive.

The *Rainbow* group adjoins the *Harvey* group on the north-west. It consists of five claims and is under bond to F. H. Taylor, who reports promising developments. This group was not inspected by the writer.

Telkwa Collieries.—Active operations are expected at the Telkwa Collieries this fall. Assistance was granted towards improving the wagon-road between the Goat Creek Colliery and Telkwa, a distance of about 5 miles. Coal will be hauled by motor-truck, whereas formerly it was necessary to wait until snow permitted of sleighing. The output this year is therefore expected to be greater than in former years.

Telkwa River.

On the *Kitchener* group, at the headwaters of the Telkwa river, situated on Clear creek, and owned by Messrs. Gillespie, Wilson, and Goodwill, assessment-work was done.

In the vicinity of the contact of the volcanics with the Coast Range granodiorite there is on this property a wide quartz vein in granodiorite, which is evidently very persistent and can be traced on the surface for a considerable distance. At the time of inspection many of the open-cuts had caved in and it was not possible to determine its average width, which might be 6 feet or more. The average strike appeared to be N. 20° E. (mag.), with a dip to the south-east, very flat at one point. Another wide branch vein, striking approximately N. 15° E. (mag.), joins the main vein at one point. Exposures are as yet purely surface exposures, but both main vein and branch appear to be fairly well mineralized. The mineralization is essentially galena, blende, and iron pyrites, with occasional small amounts of copper pyrites. At one point in the branch vein there is exposed a width of 5 feet of concentrating-ore. A sample across this width assayed: Gold, 0.3 oz.; silver, 2 oz.; lead, 4 per cent.; zinc, 2 per cent.

At the point of heaviest mineralization in the main vein there is exposed a width of 1.5 feet of heavily mineralized quartz. A shot or two at this point might possibly disclose a width of 6 feet of concentrating-ore. Sample taken across the width of 1.5 feet mentioned assayed: Gold, 0.44 oz.; silver, 5 oz.; lead, 8 per cent.; zinc, 12 per cent.

The exposures referred to occur above timber-line at an elevation of between 4,700 and 4,800 feet. It is very gratifying to note gold values, but further work is necessary at this property and the owners would be well advised to do such. At present only ore of a distinctly "concentrating" character is in evidence. The demand for lead properties is at present active. This property is at a distance of about 33 miles from Telkwa, but it is to be borne in mind that a good sleigh-road runs from Telkwa to the South Fork bridge, a distance of 17 miles, from which point a trail leads to Milk creek a further 12 miles, and thence it is a further distance of about 4 miles. Further, it is to be noted that the Department of Mines will this year make a good pack-trail from the South Fork bridge to Milk creek, so that access will thereby be greatly facilitated to the headwaters of the Telkwa river, a promising region geologically.

The *Rob Roy* group, owned by Messrs. Gillespie, Wilson, and partners, is situated on Silver Tip mountain, which adjoins on the south Bonanza mountain, on which the *Kitchener* group is situated. There is on this group a persistent quartz vein, but at the time of inspection a snowslide had covered the point at which it was stated a width of 4 feet of mixed galena, blende, and quartz had been discovered.

Hunter Basin.

This basin is reached by an excellent sleigh-road from Telkwa 12 miles in length and then a trail 4½ miles in length. The Department of Mines has this year given a material grant to further improve the trail.

The principal properties in the basin are the *Hunter* group, consisting of the *King*, *Rainbow*, *Mohawk*, and *Idaho* claims, and the *Riegle* group, consisting of the *Hunter*, *View*, and *Ptarmigan* claims. Both these groups are owned by O. A. Riegle, of Telkwa.

A strike was recently made on the *King* claim, a crosscut 120 feet long having struck the vein, which is exposed about 35 feet above by an open-cut. A distance of 12 feet of drift has been run from the end of the crosscut, stripping the ore, which consists of a width of 12 inches of solid chalcopyrite with some bornite. Assays are not to hand at the time of writing.

Grouse Mountain.

An excellent motor-road (the main Provincial Highway) runs a distance of 16 miles from Telkwa to the foot of Grouse mountain. A wagon-road about 5 miles in length branches from the main road to the summit of the mountain, which has a flat top and the elevation of which is about 4,700 feet. On the plateau-like top are several small lakes and the site for mine camps is excellent.

The principal claims are those owned by the Cassiar Crown Copper Company and Louis Schorn, but a number of other claims are held by different individuals, who have been busy doing assessment-work during the summer. Noteworthy strikes were made on the *Lakeview* and *Cornu Copia* properties.

The *Lakeview*, owned by L. Schorn, was worked all last winter and two men are still employed on it. It is situated by the side of a small lake. The main showings of the claim are several parallel shear-zones, well mineralised, some of which are not more than 20 or 30 feet apart. The strike of these shear-zones, which are in schistose volcanic rock, is approximately north-west and south-east (mag.). The width of the veins is between 4 and 8 feet and the mineralisation is essentially comparatively solid zinc-blende studded with chalcopyrite. Development-work on this property consists of one tunnel about 20 feet in length, just above the lake-level, following mineral exposed on the surface a short distance above, and another tunnel 80 feet in length run in at a somewhat higher level, following another parallel shear-zone; this tunnel follows the foot-wall of the vein throughout its length. At 50 feet from the portal a crosscut run to the hanging-wall had disclosed a width of 4 feet of fairly solid mineral, but had not at that time reached the hanging-wall. A sample across this width of 4 feet assayed: Gold, trace; silver, 10 oz.; copper, 3 per cent.; lead, *nil;* zinc, 34 per cent. Since inspection, the owner reports that the crosscut was continued, reaching the hanging-wall and exposing a total width of 8 feet of ore.

The *Cornu Copia* group is owned by J. Oakes, J. Donaldson, and K. Nolsven. It is gratifying to report a strike of high-grade ore on this property, and while the showing is at present extremely small, nevertheless, having regard to the fact that hitherto only low silver values have been met with on Grouse mountain, it is an incentive to further development.

There are various points on this group at which mineralisation occurs in shear-zones, but in no case is the mineralisation heavy, nor has it been actively followed up. The high-grade mineral occurs in a vein which varies in width from 6 to 15 inches and which shows in places grey copper, specular iron, and copper-stains. A sample of the best mineral-showing assayed: Gold, 1.7 oz.; silver, 204 oz.; copper, 6.5 per cent.

This vein has been exposed by an open-cut and appears to strike N. 25° E. (mag.), dipping easterly. It is, of course, as yet premature to say just what this discovery will amount to.

On the *Black Fox*, owned by F. Dobey, there is a mineralisation 5 feet in width showing an appreciable amount of zinc-blende and chalcopyrite. The shear-zone strikes N. 40° E. (mag.) and dips westerly. Picked sample of this ore assayed: Gold, trace; silver, 34 oz.; copper, 10 per cent.; lead, trace; zinc, 14 per cent. The owner should follow this up.

The owners of the *Rainstorm*, *Maisie*, and *Hidden Treasure* have all been doing assessment-work. The last mentioned is a recent location by Walter Skelhorne.

The *Venus* group, owned by A. S. Miller and J. Bussinger, is situated on Mineral hill, at the south end of Grouse mountain. The owners report promising mineral in a shaft sunk from the surface on a vein showing a pay-streak on the surface 3 or 4 inches in width, in which occurs galena, zinc-blende, chalcopyrite, and grey copper. At the time of inspection the shaft was full of water. A sample from a few tons of picked ore piled at the collar of the shaft assayed: Gold, 0.04 oz.; silver, 147 oz.; copper, 6 per cent.; lead, 14 per cent.; zinc, 36 per cent.

The owners state it is their intention to sink this shaft another 100 feet next year. This group is readily accessible, the main highway running along at the base of the mountain on which it is situated. Distance from Telkwa is about 20 miles.

Some assessment-work was done on the *Satan* and *Bruneis* claims, owned by P. Teckoles, south of Mineral hill.

Owen Lake.

The *Silver Queen* group, owned by H. C. Wrinch, and the *Diamond Belle* group, owned by J. P. Cole, were examined by an engineer representing prospective purchasers.

SIBOLA SECTION.

No activities in this section, beyond assessment-work on claims, are reported. The *Emerald* group has been examined by field engineers.

BURNS LAKE SECTION.

Silver Island Mining Co.—All workings and important surface showings are confined to the *Silver Island* claim, which has an area of about 22 acres and is situated on Babine lake, 10 miles from Donald's Landing in a southerly direction and distant about 3,000 feet from the south shore of the lake. This property had in operation a steam-operated water Leyner drill at the time of inspection and is being worked in a highly energetic manner. Great credit is due the superintendent, H. J. Macdonald, and also E. F. Campbell and F. Hagan, all officials of the company and part owners, for overcoming many difficulties in the way of getting mining plant running satisfactorily in a somewhat inaccessible region. Mining operations consist in the following-up of narrow seams of high-grade silver mineral, exposed on the surface, by means of drifts at water-level and winzes therefrom. Mineralization on the surface consists of small amounts of galena, blende, and chalcopyrite, together with argentite and grey copper. Native silver is also in evidence. Drifts run just above the water-level follow this mineral inwards for a maximum distance of 153 feet, but unfortunately mineralization in the tunnels was not as good as that met with on the surface. The highest point of the island rises about 135 feet above the lake.

Taltapin Mining Co.—A full account of this property was given in the Annual Report of the Minister of Mines for the year 1920. Development since that report has consisted mainly in sinking a shaft to a depth of 90 feet. This shaft had for its objective the penetration of the downward continuation of the "High Grade" vein. While cutting out a pump-station at the bottom of the shaft, it is stated, a vein not exposed on the surface was penetrated, and this vein showed a width of 3 feet of good ore. At the time of inspection the ore indicated to the writer as resulting from this recent strike consisted of mixed zinc-blende and galena, mainly, carrying low silver values. It is to be noted that the strike in question is not the objective—the penetration of the "High Grade" vein—of the shaft. At the time of inspection by the writer the shaft had filled partially and access to the bottom of the shaft was impossible.

MANSON SECTION.

Time did not permit of a trip into this section, which is very fully reported upon in the Annual Report of 1924. Several engineers made reconnaissance trips in this section during the summer.

CARIBOO MINING DIVISION.

As the writer has not yet made an inspection trip into the Cariboo and Quesnel Mining Divisions, the following report by H. Beech, Gold Commissioner of the Cariboo Division, is included as being of interest:—

"I have pleasure in reporting that satisfactory progress is being made in the Cariboo Mining Division, both from the point of increased gold production and the development of new mining areas. While some of these areas have been known and gone over in previous years, there have never been the same encouraging results as those which have rewarded operators and prospectors during the present season of 1925.

"While abundant rainfall made the season of 1924 an especially good one from the hydraulic operators' standpoint, which enabled them to carry on for most of the season, the year 1925, while much drier, will show a much larger gold production owing to the steady output of the dredge on Antler creek.

"While no new placer discoveries have been made, new discoveries of gold-bearing quartz have been reported. Within a few miles of Barkerville new ore-bodies have been opened up on Proserpine mountain, Island mountain, Cariboo mountain, and Cunningham mountain. These new developments can be fairly credited to 1925 and have led to a greater interest in quartz prospects, some of the foregoing having been bonded to reliable companies after careful examinations by experienced mining engineers. Quartz showing high values in free gold has been found on Cunningham mountain by J. H. Campbell and Isaac E. Moore, and on Cariboo mountain by Messrs. Thomas, Dahl, and others.

"In the vicinity of 6-Mile creek, within a short distance of Prince George, many mineral claims have been staked and the possibilities are that some of this area will carry payable values."

NOTE BY THE PROVINCIAL MINERALOGIST.

Through the courtesy of C. A. Banks, manager of the Kafue Copper Development Company, the following information regarding the operations of the company's dredge on Antler creek, near Barkerville, has been received for publication:—

"The dredge was built in 1924 and the machinery was, in December last, turned over and found to be satisfactory. The dredge was then closed down on account of weather conditions.

"In April last we started up and commenced digging to bed-rock, which we reached in May.

"From May to the present date we have dredged between 60,000 and 70,000 cubic yards monthly—the boat was built for 60,000.

"Our operations to August 20th were almost wholly in ground which had been drifted in the early days; but in spite of this we have since June 1st been paying our way.

"On August 20th we got out of the old workings, and since then have been taking out, roughly, $750 daily, with conditions steadily improving. Our monthly costs are around $6,500, or, say, 10 cents a yard. The total recovery to the end of this month will be about $50,000.

"C. W. Moore is dredgemaster and approximately twenty-seven men are employed."

CENTRAL MINERAL SURVEY DISTRICT (No. 3).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY JOHN D. GALLOWAY, ACTING RESIDENT MINING ENGINEER.

GENERAL REMARKS.

This district comprises the seven Mining Divisions of Clinton, Lillooet, Kamloops, Ashcroft, Nicola, Vernon, and Yale.

Until May 31st of this year A. W. Davis was Resident Engineer of this district, on which date he resigned in order to enter private practice as an engineer. On June 1st, 1925, the writer was appointed Acting Resident Engineer, holding office until the appointment on September 20th of H. G. Nichols as Resident Mining Engineer.

Only a portion of the writer's time was available for examination-work in the district owing to the necessity of attending to considerable work as Provincial Mineralogist. Complete information regarding mining activities in the district is not therefore available.

In this district there is widespread mineralization in many parts and a great variety of mineral products occur. In past years the actual production has been small, but the prospecting and development under way during 1925 gives promise of an increased production in future years.

The important developments of the year have been: The reopening of the *Iron Mask* mine at Kamloops, where a development campaign is under way, including the sinking of a new shaft; the operations of the Merrit Mines, Inc., which is developing the *Vimy Ridge* group and the old *Aberdeen* property, which are situated near Merritt; the opening-up of the gypsum-deposit at Falkland, on the new Kelowna–Kamloops branch of the Canadian National Railway, by the B.C. Gypsum Company; the success being attained by development on the *Lorne* and other properties in the Bridge River section; the reopening of the *Emancipation* mine near Hope; the continued development of the old cinnabar property on Kamloops lake; the bonding of the *Windpass* property at Chu Chua by Eastern interests, and the commencement of vigorous development by them; further work on the *Empire* group in Highland valley; and a number of placer-mining enterprises at different points throughout the district.

Prospecting has been fairly active throughout the district. At Hope the prospectors have been busy and some encouraging results of the development of gold-quartz veins are reported. At the head of Tenquille creek, Lillooet Division, several properties were developed by the owners with satisfactory results. The mineralization in this area is with high-grade silver minerals, including grey copper and galena.

In the vicinity of Pemberton prospectors have been active. In this district there is a strongly mineralized belt through which the Pacific Great Eastern Railway passes from Cheakamus to Lillooet, which has not received the attention it deserves. Many showings of low-grade copper ore are known to occur and others carrying values in silver and lead are reported.

HAT CREEK COALFIELD.

Much interest has been aroused by the operations of the Hat Creek Coal, Limited (N.P.L.), in commencing the testing and development of certain coal leases on upper Hat creek, 15 miles from Pavilion Station, on the Pacific Great Eastern Railway. The occurrence of beds of lignite at this point has been known of for many years and in 1894 it was reported on by Dr. Geo. Dawson, of the Geological Survey of Canada. This lignite has been used slightly locally, and in 1924 an attempt was made to mine and ship it by motor-trucks to the Pacific Great Eastern Railway and market it in Vancouver; this was unsuccessful.

During the summer of 1925 diamond-drilling of the property was carried on by the Hat Creek Coal, Limited (N.P.L.). In all, seven holes were drilled, varying from 150 to 635 feet deep. In four of these holes coal was encountered. The results of this drilling show a number of thick bands of interbedded coal, shaly coal, and shale. The drilling is confined to an area approximately 1 mile long by 1,000 feet wide. It has been estimated that the actual proven coal, exclusive of shaly coal, does not as yet exceed 14,000,000 tons. The average of twenty-five analyses (twenty-three borehole cores and two tunnel averages) on this coal by the Provincial Government Assayer is:—

	Per Cent.
Moisture (water)	18.2
Volatile combustible matter	30.4
Fixed carbon	41.2
Ash	10.2

The average calorific value, as determined on eight samples by the Provincial Government Assayer, is 8,499 British thermal units. By applying Dowling's Split Volatile Ratio to the above analysis the numerical value of the ratio is 1.69 and the coal is therefore classed as a lignite. By its physical appearance this coal is a typical lignite.

The value of this coalfield will ultimately depend on the quantity proven, the possibility of economically mining a fair percentage of the thick seams indicated by drilling, and the possibility of marketing lignite in competition with higher-grade fuels.

NON-METALLIC MINERALS.

This district contains the greatest wealth of non-metallic minerals of any district in the Province. Unfortunately, comparatively little headway has been made in utilizing these minerals, the reason being that the use of these minerals is closely allied with manufacturing industries, and therefore proximity of market and transportation are important factors. This is well illustrated by the large deposit of gypsum at Falkland which has been made accessible by the construction this year of the Kamloops–Kelowna branch of the Canadian National Railway. This deposit is now being opened up and it is announced that a plant for treating the gypsum will be erected near New Westminster.

About 3,000 tons of soda was taken from the soda-lakes north of Clinton last winter, and is being gradually shipped to Vancouver during the year as the market will absorb it. Consolidation of the various interests owning these deposits and the erection of a suitable central dehydrating plant for converting the soda into soda-ash would greatly facilitate the exploitation of these deposits. Shipping the product as soda-ash the transportation cost would be cut in half; a wider market could be secured and profits would be greater.

SOUTHERN MINERAL SURVEY DISTRICT (No. 4).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY P. B. FREELAND, RESIDENT MINING ENGINEER.

Prospecting and mining development in the Southern District (No. 4), comprising the Grand Forks, Greenwood, Osoyoos, and Similkameen Mining Divisions. have been steadily on the increase during 1925. Many inquiries and offers of capital investment, chiefly from the United States, have been received.

Silver-lead properties have been keenly sought and many old mines opened up and prospected for continued ore-shoots. A large measure of success has attended these efforts, but actual tonnage results will probably not be forthcoming until later in the year or in 1926.

The low price of copper during the first six months of 1925 did not stimulate the mining of this metal. Latterly, with the market holding fairly steady at 14½ cents a pound, a greater interest has been shown. Authorities on the future price of copper think that a steady price of 15 cents a pound and up may be looked for for the next year or two, in spite of the fact that some of the larger copper-mining corporations have been curtailing operations.

The Allenby Copper Company (formerly the Canada Copper Company), of Princeton, has remodelled the mill and steady operation of the Copper Mountain mine is expected, which will materially advance the tonnage figures for the district.

Many companies, small syndicates, and individuals have interested themselves in the exploitation of the river and bench gravels on the Tulameen and Similkameen rivers for the gold and platinum contents. Preliminary investigations and plant-construction, etc., necessary to genuine attempts to operate have taken up most of the time to date. Results, therefore, will not be forthcoming until later in the season or not until 1926.

This is the first time in the history of the locality that any properly financed attempt has been made to exploit the bench-gravels. Investigations are also being made regarding the saving and marketing of the magnetic and chromite sands found in the gravels in this area. These sands generally contain values in platinum and gold and appear to be worth saving if the total values of the platinum group are paid for. The platinum metals found are iridium, osmium, osmiridium, and palladium.

At Wallace mountain, Beaverdell, in the Greenwood Mining Division, a lot of development-work has been done, and instead of two operating properties, the *Bell* and *Sally*, there are six, as well as several individual lessees. Excellent results followed the stripping of the surface and several veins carrying high-grade silver values have been uncovered and are being developed at depth. Many claims in the neighbourhood have been leased, bonded, and are being exploited.

The town of Beaverdell has expanded to meet the demand and two new stores as well as several dwelling-houses have been built.

Two high-grade shipments of ore have been made recently from the *Sally* mines, carrying 517 oz. in silver and 20 per cent. lead and 608 oz. in silver and 18 per cent. lead respectively. Each car-load carried about 50 tons.

Throughout the district forest fires have menaced and retarded mining operations and prospecting. In many cases, especially at Beaverdell, the mines have been closed whilst the miners fought fire.

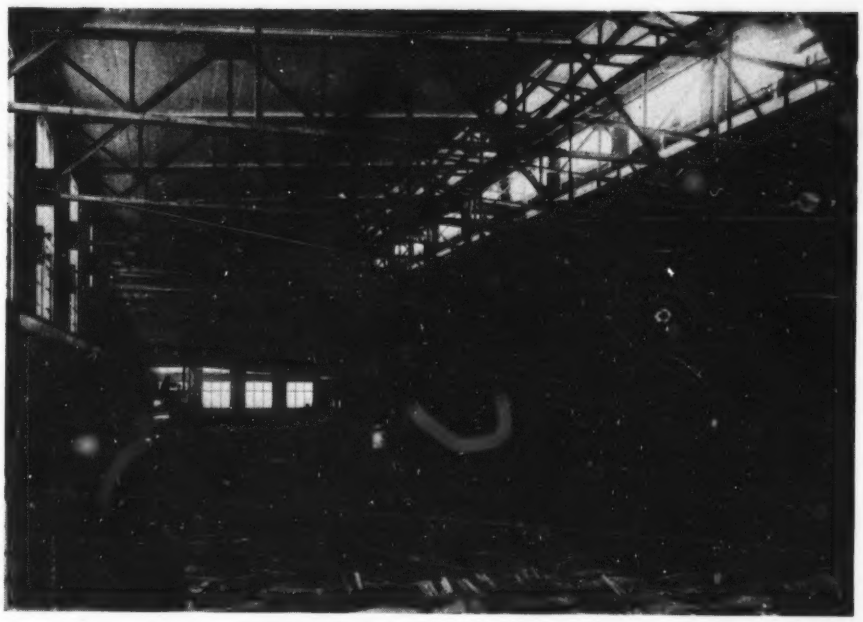
In 1924 the total tonnage shipped was 50,315. In 1925 more than double that tonnage may be looked for, and probably more if the copper-mines at Princeton continue operations. There will be a higher silver-lead content to the ton, due to the rich ores shipped from Beaverdell.

A discovery of a large silver-lead deposit containing pyrrhotite and zinc has been reported from an area 25 miles south of Princeton. This will be examined and reported upon later in the season.

A continuance of the *Providence* vein at Greenwood was discovered in the *Elkhorn Fraction* shaft. This is being mined at the present time and a shipment will probably be made before the end of the year.

No other discoveries have been made or reported to date, but many old workings have been cleaned out and some good showings of ore developed.

Cons. M. & S. Co. of Canada—New Zinc Plant at Trail.



Cons. M. & S. Co. of Canada—Lead-refinery at Trail.

At Treasure mountain, Tulameen, an effort is being made to interest capital in the silver-lead and zinc deposits. Ore has been developed to a depth of 400 feet, and assays from sorted ore show about 100 oz. in silver, 60 per cent. lead, and 13 per cent. zinc. The vein varies from 2 to 14 inches and is well worthy of development.

Operations were resumed at the *Rock Candy* near Grand Forks in August and fluorite is being shipped to the Trail smelter.

The *Yankee Girl* near Grand Forks is being developed at depth in an endeavour to tap the ore-shoot found in the upper level. The *Bonanza Fraction* (old *English & French*) group on Granby river is being developed by a Grand Forks syndicate. The old tunnel has been retimbered and a strong showing of silver-lead and zinc uncovered. The owners intend shipping a car-load to the smelter in the near future.

Financial interests have bonded the *Imperial* group near Rock creek and development-work is contemplated at once.

A good deal of development-work has been carried on in the silver-lead mines at Greenwood, but those interested were not sufficiently capitalized to develop their properties to the producing stage.

The *Horn Silver* mine near Similkameen is being operated by Vancouver interests and a small concentrator is being erected. Some good milling-ore has been developed in the East drift.

The Hedley Gold Mines Company worked steadily throughout the season, but intends closing down the mill this winter and carrying on active diamond-drilling.

The K.V. Mines, Limited, with registered offices in the Bank of Nova Scotia Building, Vancouver, and under the management of P. H. Fraser, of that city, has leased and bonded some of the *Contact Consolidated* claims in the Burnt basin at Paulson. Three or four men have been working in an endeavour to develop some silver-lead veins, but without success up to the present. At the present time the main tunnel on the old *Motherlode* claim is being driven ahead on the vein. In this tunnel are small segregations of pyrite and fine-grained galena in a gangue of quartz.

This ore was sampled by Dr. W. F. Ferrier in 1918 for the Munitions Resources Commission of Canada and no platinum was found. Others have sampled it and have found from a trace up to ¼ oz. of platinum to the ton. Small picked samples or concentrated ore might give higher results, but in any case the segregations of mineralized quartz are so small in extent that they do not represent any tonnage and until more ore of this variety is developed the platinum contents cannot be included in an estimate of value to the ton.

EASTERN MINERAL SURVEY DISTRICT (No. 5).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY A. G. LANGLEY, RESIDENT MINING ENGINEER.

GENERAL REMARKS.

This district, comprising the Revelstoke, Lardeau, Trout Lake, Slocan, Slocan City, Ainsworth, Nelson, Trail Creek, Arrow Lake, Golden, Windermere, and Fort Steele Mining Divisions, has experienced an active season. It being by far the most productive area for silver-lead-zinc ores in Canada, the attention of mining men far and wide has been focused on its possibilities, with the result that the season has witnessed an invasion of mining engineers, representing important British and American mining interests. This may be taken as a forerunner of the continued watchfulness and alertness of big companies to acquire promising prospects in this part of British Columbia.

The present demand for properties means a lot to the prospector and mine-owner alike, for should the price and terms be reasonable and the property have merit, there should not be much difficulty in interesting capital. Further, there is now evidence that professional and business men in local centres are alive to the situation and small syndicates have been formed to grubstake prospectors and acquire mining properties.

The policy of the Consolidated Mining and Smelting Company, in lowering of its smelting charges and the acceptance of customs ore for concentration, indicates a desire to co-operate

with the independent producer. The acceptance of ores for concentration will certainly prove of great benefit to the small producer of high-grade complex ore, the metallic constituents of which require separation before reduction.

In analysing the season's activities, we find that there are about the same number of producing properties as last year—namely, between forty-five and fifty. As usual, the shipping-list includes the names of a number of small producers of high-grade ore. The properties responsible for the bulk of the tonnage have maintained their output this season, while the *Blue Bell* and *Lucky Jim* have been added to the list, and it is anticipated that they will materially help to increase the annual production. Both these properties have good records of productive activity extending over a period of years, and it is most gratifying to know that recent developments have again placed them in a position to ship ore and concentrates.

DEVELOPMENT AND EXPLORATION.

Among the many new developments which give rise to expectations that within the next year or so more new names will be added to the shipping-list, the following may be mentioned: The *Stemwinder* and *North Star* mines are being vigorously developed and prospected by the Porcupine Goldfields Development and Finance Company, Limited; at the *Ruth* mine near Sandon deep-level development is being pushed ahead by the Ruth-Hope Mining Company; the *Carnation* group at Sandon is being systematically prospected by R. H. Stewart, acting on behalf of the Victoria Syndicate, which has an option on the property; at the *McAllister* mine near Three Forks a tramway is about completed to transport the ore to the wagon-road, and it is expected that steady shipments will soon be made; and at the *Whitewater* mine deep-level development has met with encouraging results and arrangements have been concluded to carry out an extensive development programme. It is anticipated that extensive work will also be done at the *Utica* by the Canadian Mines Merger under the direction of Colonel Armstead. The *Emerald* on Sheep creek, which during the last several years has ranked well with the principal lead-producers of the district, is now being systematically developed with a view to increasing production. At Field the Pacific Mines Petroleum and Development Company, which has been developing the *Kicking Horse* mine, has recently acquired the *Monarch*. There is evidence of renewed activity in the Sheep Creek gold camp, where the *Reno* is now being developed by American capital. It is reported that work will be continued at the *Nugget-Motherlode* properties by the Selkirks Mines Company.

PROSPECTING AND EXAMINATION.

Prospecting, exploratory, and examination work has been considerably more active this season than last, in spite of the fact that forest fires raging in various parts of the district, due to the exceptionally dry season, hampered the work of the prospector, small operator, and field engineer.

With high price of metals, the immense tonnage being treated by the Trail smelter, and the new ore-bodies being opened up by well-planned and extensive development, all predict increased activity and prosperous conditions for the future.

GOLDEN MINING DIVISION.

The most important work being done in this Division is that being undertaken by the Pacific Mines, Petroleum, and Development Company at Field, where under the direction of Major Angus Davis the *Kicking Horse* property is being developed. Recently the company acquired the *Monarch* mine and it is understood that milling the ore from these two properties at a centrally situated plant is contemplated. About twenty-five men are employed.

It is reported that a large body of magnetite was discovered on Moose creek, some 14 miles south of Leanchoil Station, on the Canadian Pacific Railway. A number of properties in various parts of this Division have been examined by visiting engineers, which it is hoped may result in increased activity.

WINDERMERE MINING DIVISION.

The *Paradise* mine, belonging to R. Randolph Bruce, is still the leading producer of silver-lead ore in this Division. Its production is being maintained. About thirty men are steadily employed.

The *White Cat* mine on Slade creek, which is being operated by J. C. Pitts and associates, is proving up well and some good-grade silver-lead ore is being produced under the direction of Dick Morland. Ore is now being hauled to the railway.

The *Grotto* group, previously referred to as the *Leadville* group, has been further developed, but so far no important ore tonnage has been revealed. R. A. Ballentine is in charge of the work.

At the *Phoenix* group at the head of the South fork of Horsethief creek further work is contemplated by W. Heaps Holland.

On No. 3 creek the Steele Group Mine Company is driving a crosscut tunnel to gain an additional depth of 100 feet on the vein. Five or six men will be employed during the winter.

On the North fork of Toby creek W. A. Drayton, of New York, is operating the *Last Chance* and *Last Hope* claims, situated at an altitude of between 9,000 and 10,000 feet. A light tram some 4,000 feet in length is being installed and silver-lead ore is being sacked for shipment.

Besides giving assistance towards the building of trails, the Department of Mines has contributed towards opening up the North fork of Toby Creek road, extending the main road up Toby creek to Jumbo creek and extending the road up Boulder creek, thus affording good transportation facilities in one of the most highly mineralized sections of this Mining Division.

FORT STEELE MINING DIVISION.

Apart from the major operations at the *Sullivan* mine, where 3,000 tons of ore a day is being produced, there has been a notable increase in mining activities throughout the Division. On account of the phenomenal success of the *Sullivan* mine a great deal of interest has naturally been centred around Kimberley, where the ground has been gone over very carefully by engineers in the hopes of finding indications which would warrant exploration with the diamond-drill. The first company in the field to carry on exploration and development work was the Porcupine Goldfields Development and Finance Company, which acquired the *North Star* and *Stemwinder* properties last year.

The work done at the *Stemwinder*, consisting of sinking the shaft to the 125-foot level and several hundred feet of drifting and crosscutting, as well as a certain amount of diamond-drilling, is said to have given satisfactory results. At the *North Star* two diamond-drills are being run. Some fifty men are employed.

The ground adjoining the *North Star*, which was staked by O. C. Thompson, has been subjected to careful examination by engineers representing large interests, but so far it is not known if any action has been decided upon.

R. A. Grimes, who staked a number of claims to the east of the *Sullivan*, succeeded in interesting some American capital, and it is understood that arrangements are being made to diamond-drill the area.

At Moyie the Consolidated Mining and Smelting Company is constructing a 500-ton concentrator to treat the tailings from the old *St. Eugene* mill.

On Bull river the *Copper King*, from which some ore was shipped last winter, was further developed during the season by W. S. Santo, of Cranbrook. The *Homestake* has been acquired by A. C. Bowness and associates, of Cranbrook, who intend carrying on development. The ore is gold quartz.

Development of the *Brenda* group on Copper creek was continued with a small force of men under the direction of Dan McIntosh, of Cranbrook.

It is understood that prospecting and exploratory work has been carried on at the *Boy Scout* on Hellroaring creek, the *Evans* group on Whitefish creek, the *Bird's Nest* group on Perry creek, and the *Kootenay King* on Wildhorse creek.

The Wildhorse Gold Mining Syndicate continued hydraulicking operations under the direction of W. A. Drayton. Hydraulic work is also reported to have been done near the falls on Perry creek under the direction of A. J. Palmquist.

A large deposit of gypsum near Wardner was acquired by the Manitoba Gypsum Company, and, it is understood, working of it is contemplated in the near future.

AINSWORTH MINING DIVISION.

Among the many activities around Kootenay lake, the most important developments during the season took place at the famous *Blue Bell* mine, situated at Riondel. S. S. Fowler and B. L. Eastman, who started work on the property last year, have made good progress; the

mine has been unwatered, the mill completely remodelled, and shipments of ore and concentrates are now being made.

The *Kirby* group, situated within a short distance of the *Bluebell*, is being further developed and prospected under the direction of A. J. Curle. Near Ainsworth the *Highland* mine is being operated by the Consolidated Mining and Smelting Company; the *United* by the United Mines, Limited; and the *Albion*, *Silver Hoard*, *Spokane-Trinket*, and *Tariff* by lessees.

The *Silver Hill* mine at Crawford bay is being worked by W. S. Williams, of Nelson, and associates. They expect to ship some ore this fall.

At the northerly end of Kootenay lake the *Lavina* on Hamill creek is being operated by E. Nordman, of Beaverdell. A small crew of men are employed and several cars of ore will probably be shipped this winter.

Near the northerly end of Howser lake R. S. Gallop is working at the *President* group, and J. Rady on his claim, the *Third Trip*. The ores are silver-lead.

On Cascade creek, near Poplar, P. J. Sheran has a small crew employed at the development of the *Comstock* group. The work is being financed by the Juno Syndicate, of Nelson.

On the South fork of Kaslo creek the *Cork-Province* is being worked with a small crew of men under the management of W. E. Zwicky. When visited in July some nice milling-ore was being won from the 400-foot level. The mill was running one shift. About 150 tons of silver-lead and zinc concentrates have been shipped to Trail. Work was continued during the season on the *Silver Bell*, in which Senator Green is interested; development-work was also continued at the *Daybreak* mine, farther up the creek.

The Whitewater Mines, Limited, is now carrying out a fairly extensive programme of development at the *Whitewater* mine. This principally includes the exploration of the productive zone below the tenth level and the further development of known ore-bodies. The results so far obtained give promise of again placing the property on a steady producing basis. New camp buildings have been erected near the railway for the accommodation of the men. W. H. Burgess, of Kaslo, is managing director and secretary-treasurer.

M. S. Davys, of Kaslo, has erected a small concentrator on Kaslo creek to treat the tailings from the old *Whitewater* mill.

At the *Utica* the long crosscut is being advanced, a small crew of men being employed at the property. More extensive development-work is planned as soon as financial arrangements are completed. The property was acquired last year by the Canadian Mines Merger, a company organised by Colonel H. Armstead, of Kaslo.

At the *Leviathan* group on Campbell creek work was stopped as results did not come up to expectations.

SLOCAN MINING DIVISION.

The *Silversmith* mine at Sandon continues to head the list of Slocan shippers.

Its production during the last fiscal year of the company, ending on May 31st, is valued at $450,000, leaving a net gain for the year of $144,854, according to the annual report of the company.

At the *Ruth* mine development and mining is being steadily proceeded with. The long tunnel being driven to tap the possible extension of the *Silversmith* vein has now reached its objective, according to the following wire received from R. H. Stewart, in answer to a request for information regarding this tunnel: "About 20 feet of vein, including 14 feet of milling-ore and a little high grade; no assays yet; hanging bird's-eye porphyry; dip of hanging-wall 45 degrees. Allowing for difference in elevation of two tunnels, practically on line with end of *Silversmith* Number 10 level; looks promising. (Signed) R. H. STEWART." This telegram refers to ground encountered at the end of the *Ruth* tunnel, and if expectations are fully realized it may well be the most important news emanating from the Slocan since the discovery of the *Silversmith* ore-shoot.

At the *Lucky Jim* near Zincton mining and development operations are progressing satisfactorily under the direction of A. Larson. The Rosebery mill was purchased by the company and regular shipments of ore and concentrates are being made to Trail.

The aerial tram to connect the *McAllister* mine-workings with the road to Three Forks is about completed and shipments to Trail will soon be commenced. The ore is quartz carrying silver values in grey copper, or freibergite. The property is controlled by the Standard Silver-Lead Mining Company. W. H. North is manager.

The *Carnation* group near Sandon, which George Clark has been developing for some years, was taken under option by R. H. Stewart on behalf of the Victoria Syndicate and a crew of men put to work.

The *American Boy* and *Last Chance* are being worked by Spokane interests. Work is also being done at the *Wonderful* and *Van Roi* by C. Cunningham, the *Victor* by Geo. Petty, and at the *Bosun* by the Rosebery-Surprise Company, at which property a new ore-shoot has been developed past the faulted ground and farther into the hill than ore has been previously discovered.

Lessees are active at the *Richmond-Eureka, Queen Bess, Monitor, Rambler-Cariboo, Surprise, Antoine, Standard, Lucky Thought, Apex, Mountain Chief, Mowich, Galena Farm, Hewitt*, and other properties.

SLOCAN CITY MINING DIVISION.

The *Enterprise* mine on Enterprise creek, which has been lying idle for years, has been reopened and steady shipments are now being made to Trail, where the ore will first be concentrated. E. C. Wragge, of Nelson, and P. Maguire, of Slocan City, are the principal parties interested.

Among the activities of this Division, the following properties are reported to have been operated in a small way: The *L.T.*, the *Anna* group near Springer creek, the *Peg Leg* on Enterprise creek, and the *Bopel* group on the North fork of Enterprise creek.

NELSON MINING DIVISION.

While there has been more than usual activities among prospectors and small-scale operators, the most important developments have probably taken place in the Sheep Creek area, where the *Reno*, which for a number of years has been prospected and developed by W. B. Pool and associates, is now being more extensively opened up by San Francisco interests, represented by J. Pheby and N. L. Bell, who acquired the property under option this summer.

In the same locality the Selkirks Mines Company, owner of the *Nugget-Motherlode* group, proposes to carry on exploration and development in the old *Nugget* workings during the winter. It is understood that this work will be done under the direction of Arthur Lakes.

At the *Emerald* mine on Sheep creek production has been halted for the present and work is now being confined to systematic exploration and development with a view to larger-scale production. The property has a good record of productive activity and during the present year has shipped a considerable tonnage of lead ore to Trail.

The Consolidated Mining and Smelting Company has a small crew at work on the *Hunter V.*, preparatory to the resumption of mining operations.

The *Goodenough* near Ymir is being operated by the owners, who report that they have ore ready for shipment.

The *Fern, Gold King, Gold Hill*, and *Granite-Poorman* properties have been operated in a small way and shipments made to Trail.

A small plant to treat the tailings from the *Granite-Poorman* mill was erected by Norcross Bros., who are preparing to make a shipment of a car-load of concentrates.

The *Gold Bug* on Tamarac mountain is being worked by J. Jeffery and partner, who expect to ship a car-load of ore shortly.

The Laib Bros. have been busily engaged in widening the trail from Kootenay lake to the *Spokane* group, from which property they intend to ship ore this winter.

It is reported that J. Tiyo has bonded his claims near Duck creek to Spokane interests.

The *Alice* mine near Creston was acquired under option by O. C. Thompson and associates and further development undertaken.

An event which marks the progress of mining in a most realistic way was the official opening of the power plant of the West Kootenay Power and Light Company at Bonnington on August 1st by the Hon. T. D. Pattullo, Minister of Lands. The hydraulic installation provides for 60,000 horse-power. The present electric equipment consists of two units of 20,000 horse-power each.

This splendid installation, representing the last word in hydro-electric engineering, reflects great credit on Lorne A. Campbell, who has successfully guided the destiny of this company for so many years. The power derived is mostly consumed by the Consolidated Mining and Smelting Company at its great metallurgical plant at Trail, the increased capacity of which has demanded more power than hitherto available.

TRAIL CREEK MINING DIVISION.

Although the *Centre Star-War Eagle* group of mines has not been shipping, the company has been going ahead quietly with development and diamond-drill exploration, employing about 150 men.

Exploratory work has been continued on the famous *I.X.L.* high-grade gold-mine and adjoining properties, the *Midnight* and *O.K.*

Some high-grade ore is reported to have been discovered on the latter properties during the summer, but no information is available regarding subsequent work.

TRAIL SMELTER.

The extensions which have been made to this plant during the year, notably the doubling of the zinc plant to a capacity of 200 tons and increasing that of the lead-refinery from 185 to 350 tons a day, establish it as the world's greatest non-ferrous metallurgical plant.

TROUT LAKE MINING DIVISION.

This Division received its share of attention from visiting engineers and mining men and it is possible that some deals may be result. It is reported that the *Molly Mac*, a low-grade silver-lead zinc property on Gainer creek, has been bonded to American interests.

A small stamp-mill has been installed on the *Ophir-Lade* group near the head of Gainer creek, in which property W. T. McArthur and associates, of Vancouver, are interested.

Development has been proceeded with on the *True Fissure*, where some good-grade shipping-ore is reported to have been struck on the *Blue Bell* claim. Information on numerous other activities is not available at the time of writing.

LARDEAU MINING DIVISION.

The *Teddy Glacier* group, referred to in last year's annual report as the *Ritchie* group, where a strong showing of lead ore was exposed by a receding glacier, has attracted a good deal of attention, but with the exception of building a trail little has been accomplished. Duncan McIntosh has been developing an interesting showing of silver-lead-zinc ore on the *Lead Star* on the Stephney branch of Sable creek, about 8 miles from Camborne.

On Pool creek there is more activity than usual; among the properties being worked the following may be mentioned: The *Cholla*, *Multiplex*, *Eclipse*, *Alma*, and adjoining claims. The work being done is mostly of an exploratory nature and in several instances encouraging results have been obtained.

It is reported that work done on the *Big Showing* during the season considerably improved the appearance of the property, while further work on the *Scout* was also satisfactory. F. R. Blockberger, who has many interests in this section, has spent a considerable time in visiting his various properties.

REVELSTOKE MINING DIVISION.

More than usual interest has been taken in this Division and more prospecting done, but so far no new developments of importance have been reported. A number of examinations made by visiting engineers may result in further developments, as it is known that several properties are now being carefully considered.

At the *Dunvegan* on Bain creek F. R. Rowley has succeeded in winning a small tonnage of silver-lead ore, which is now being packed out to Flat creek on the Canadian Pacific Railway. He expects to get out about a car-load. At the *Waverly-Tangier* a small crew has been employed. The winze from the 100-foot level of the *Tangier* is reported to have been unwatered, exposing a nice showing of silver-lead ore.

Ole Sandberg and Gus Headstrom put in a season at the *Snow Flake* on Silver creek. The Bernier Metals Corporation had a small crew employed at the *Woolsey* group on Silver creek.

On the *Wigwam* group W. T. Dumbleton, of Tacoma, has a crew of ten men doing exploratory work. A good road has been built to the property, which is situated on Isaac creek. A small portable sawmill has been erected to cut the necessary lumber for mining purposes and camp equipment. Work will be continued throughout the winter months.

A company called the French Creek Development Company, Limited, was recently incorporated to work the placer deposits on French creek, some 70 miles north of Revelstoke. At the time of writing no information is available regarding the operations or the success obtained in raising capital on the extraordinary statements made in the company's prospectus.

WESTERN MINERAL SURVEY DISTRICT (No. 6).

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY WILLIAM M. BREWER, RESIDENT MINING ENGINEER.

The Western Mineral Survey District (No. 6) includes the following seven Mining Divisions: Alberni, Clayoquot, Quatsino, Nanaimo, Victoria, Vancouver, and New Westminster. The area of the district is approximately 248 miles from north to south by 213 miles from east to west, including the area covered by water between the Mainland and Vancouver island.

INTRODUCTION.

This district presents many attractive features for the prospector. The extreme northerly portion is the only part which is not easily accessible from the shore-line.

Another distinct advantage is the climatic condition of mild winter weather and light fall of snow, enabling prospectors to work continuously over a great part of the district. In fact, the only portions that are practically inaccessible to prospectors during the winter are the extreme northern and eastern parts of the district.

A third distinctly attractive feature is the Coast range of mountains, made up of the granodiorite batholith, in which occur the following groups of mineral claims, including productive mines: The *Dolly Varden* and *Lucky Four* in the Chilliwack section; *Britannia*, *Sunshine*, *Hillside*, *Bruce*, *Bell*, *Radiant*, and *Contact* in the Howe Sound section; Pykett's in the Ashloo Creek section, upper Squamish river, as well as several prospects on Powell lake, Theodosia arm, Phillips and Frederick arms of Cardero channel, as well as Knight and Seymour inlets.

The following sections have been visited and prospects and mines under development have been examined:—

Victoria Mining Division: Koksilah river, Mount Sicker.
Alberni Mining Division: Vicinity of Port Alberni.
Clayoquot Mining Division: Nootka sound, Tahsis canal, Zeballos river, Esperanza inlet, Kennedy lake, and Elk river.
Quatsino Mining Division: Quatsino sound.
Nanaimo Mining Division: Phillips and Frederick arms of Cardero channel, Port Hardy, Shushartie bay, Texada island, and Rock bay.
Vancouver Mining Division: Jervis inlet and Lynn creek.

PROGRESS IN METALLIFEROUS MINING.

There has been a decided improvement in District No. 6 as compared with 1924, although there have been no regular producers added to those of 1924. There have, however, been a few shipments of limited quantities of ore made from the Phillips Arm section, from the *Doratha Morton* and *Monte Cristo* properties.

Probably the most important feature connected with mining in the district this year has been the reopening of the old *Doratha Morton* property, which was closed down in 1899 by the Fairfield Exploration Syndicate, of London, after the mine had produced 4,434.08 oz. in gold and 10,222 oz. in silver from 10,385 tons of ore crushed. The mine was reopened by the Glassair Mining Corporation, Limited.

Another important feature was a renewal of interest by the executors of the late H. W. Treat's estate with regard to the properties owned by the Vananda Copper and Gold Company on Texada island and the prospects owned by the late Mr. Treat on Jervis inlet. Those on Texada island have been closed down since 1902, except occasionally since that date the *Copper Queen*, *Cornell*, *Little Billy*, and *Loyal* have been worked spasmodically under leases, but have all been entirely idle since 1918. In the spring of 1925 C. B. Fitzgerald, of Seattle, the manager of the Treat estate, made a thorough investigation with regard to the titles and the status of the mining property.

The Britannia Mining and Smelting Company has been working continuously during the eight months, employing approximately 1,000 men.

In the Quatsino Mining Division the Coast Copper Company, a subsidiary of the Consolidated Mining and Smelting Company of Canada, has continued development-work on the *Old Sport* with forty men and two diamond-drills. The property was described in the Annual Report of the Minister of Mines for 1924.

The water-power resources of Raging river, which empties into Elk lake, have been investigated, and near the confluence it is proposed to construct a dam and develop water-power with a capacity of about 900 horse-power which will be utilized for power purposes in the proposed concentrating-mill and also, in conjunction with the present power plant, to furnish all the power necessary for mining operations, lighting, etc.

The same company has bonded and also commenced prospecting with a diamond-drill on the *Pilgrim* claim, owned by O. A. Sherberg, of Quatsino, and situated near the Amazon river, a tributary of Victoria lake, 7 miles east of June Landing on the South-east arm of Quatsino sound. On it occurs an outcropping of zinc-blende ore of quite considerable extent, a grab sample of which assayed: Gold, 0.02 oz.; silver, 2 oz.; copper, *nil;* zinc, 37 per cent.; iron, 26.8 per cent.

The Coast Copper Company is also contemplating prospecting with a diamond-drill the *Caledonia* group, situated near Quatse lake, about 8 miles from Hardy Bay.

Development-work on the Lynn Creek zinc property, about 7 miles from North Vancouver, was commenced by A. B. Trites, but was later stopped and the option held abandoned.

ALBERNI MINING DIVISION.

There has been very little activity in the Alberni Mining Division beyond the performance of the annual assessment-work on un-Crown-granted mineral claims. No new discoveries of metalliferous-mineral deposits have been reported.

CLAYOQUOT MINING DIVISION.

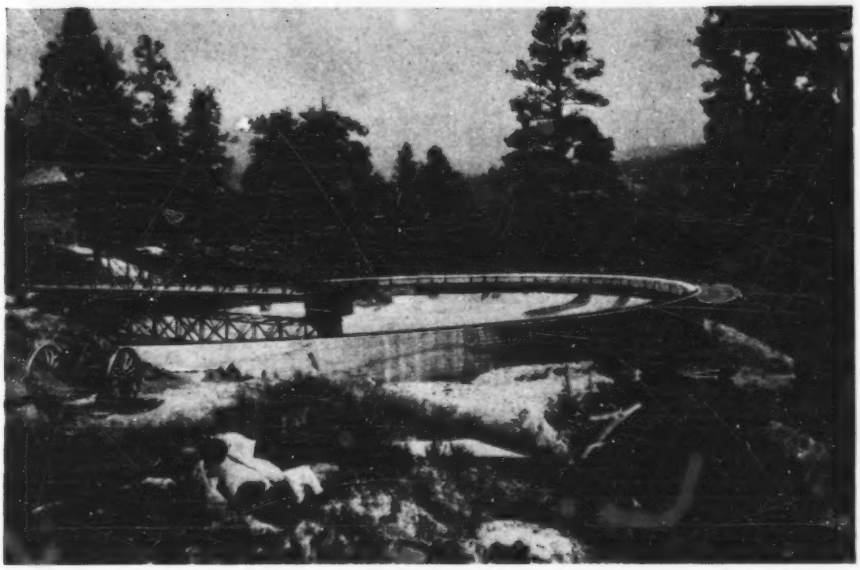
On the *White* group, about 1½ miles above the mouth of Tofino river, further prospecting has been done by W. Walton, one of the owners. The extent of mineralization is very considerable; in fact, there is more than an acre in area covered by outcroppings of high-grade copper ore, which in places is found under the roots of quite large trees, but up to the present time the source of this ore has been undetermined. The owners are not financially able to carry on development-work to any great extent.

Sampling of this property during an examination made in 1918 resulted in the following values being obtained by assay:—No. 1: Gold, trace; silver, 1.6 oz.; copper, 11.5 per cent. No. 2: Gold, trace; silver, 1.6 oz.; copper, 12.5 per cent. These samples represented a general run of the ore exposed at the time of examination and since then, especially during the past spring, further prospecting-work has been carried on.

More attention has been directed during the past spring to the Tahsis canal, Nootka sound, and the Zeballos river, which flows into Esperanza inlet, sections of the Clayoquot Mining Division than to other parts.

Prospecting-work was commenced on the *Eldorado* group, situated on the Zeballos river, by the English syndicate, which has the controlling interest, with a crew of miners under the supervision of Roy Watson. The object was to determine the extent of the high-grade ore that outcropped near the bank of the Zeballos river. This property was examined in May, 1925, and a sample taken from the outcropping of high-grade ore, which represented a fair average of the outcrop exposed, across 3 inches and 8 feet long, assayed: Gold, 13.90 oz.; silver, 7.5 oz.; copper, 1.5 per cent.; zinc, 4 per cent. Several open-cuts made at varying distances from the outcrop referred to along the presumed strike of the vein were also sampled, but by assay these samples were found to contain no value.

Star of the West.—This group, situated at the head of Tahsis canal and owned by William F. Poole and T. T. Gardhouse, of Nootka, was examined in May, 1925, because, although the group has been fully described in the Minister of Mines' Report for 1923, since then the development-work has been extended. The work done recently has been confined to the bluff about 125 feet distant in a southerly direction from the discovery post of the *Hakodate*. The southerly side of this bluff appears to mark the boundary of the *Hakodate* mineralized zone in that direction, because an open-cut 30 feet long has been made into the bluff from a northerly direction near the base, and has exposed heavy mineralization and considerable solid ore



Allenby Copper Co.—Slimes Settling-tank.

Elk River—New Power Plant.

through the entire length, with a wall about 15 feet high of granodiorite exposed as the southerly face. Drifts have been run in both easterly and westerly directions along the granodiorite wall, in which a body of practically solid ore is exposed for 4 feet wide; next to this ore in a northerly direction and reaching to the entrance of the open-cut, 25 feet distant, chalcopyrite ore is exposed in a gangue made up of garnetite and limestone, with caves showing in the limestone more or less filled with ore.

An average sample taken across 4 feet next to the granodiorite wall assayed: Gold, trace; silver, 1 oz.; copper, 3.7 per cent.; zinc, 1 per cent. Another sample representing about an average of the ore dump along the open-cut assayed: Gold, 0.10 oz.; silver, 1 oz.; copper, 12 per cent.; zinc, 1 per cent. Another sample taken from the floor of the open-cut about 20 feet from the entrance assayed: Gold, 0.10 oz.; silver, 1 oz.; copper, 6.9 per cent.; zinc, 1 per cent. This sample was taken from a hole made by a shot that was fired during the examination.

Prospecting-work done about 50 feet westerly from the west end of the open-cut has exposed ore in a limestone and garnet gangue, indicating the extension of the mineralized zone in that direction, but the overburden between the westerly end of the open-cut and this last-mentioned prospect-hole is too heavy to be removed by hand.

North of the bluff in which the above-mentioned open-cut is made there is a zone 175 feet wide made up of garnet and limestone and showing more or less mineral, also two well-defined intrusive dykes, each about 18 inches wide, which form a junction in an open-cut and short adit where the ore-body is divided into two parts, each measuring about 30 inches in width, beyond the point of junction of the two dykes which cross the adit, dipping almost vertically. A sample from this adit taken in 1923 assayed: Gold, 0.16 oz.; silver, 1.5 oz.; copper, 16 per cent.

As granodiorite is found a short distance northerly from the open-cut and adit just mentioned, it would appear as though the *Hakodate* mineral-zone occurred in a belt of limestone and garnet rock 175 feet wide.

Transportation facilities for the *Star of the West* are excellent, because the group extends from deep water on Tahsis canal and is located one claim wide for a distance of 6,000 feet, the *Hakodate* being the farthest from the sea, the workings thereon being at an elevation of 1,500 feet above the sea.

Eagle.—This group consists of *Eagle No. 1*, *Eagle No. 2*, and *Eagle No. 3* on King's passage, near the entrance to Muchalat arm of Nootka sound, about a mile from deep water. The group was staked and recorded by a prospector named West in 1924 when he was acting as agent for Victor Spencer and A. H. Wallbridge, of Vancouver. During the past spring these gentlemen employed W. F. Poole, of Nootka, to prospect the showings on the claims in order to determine whether or not they would justify development. Early in August the two principals, accompanied by D. A. Harris and Erskine Smith, of Vancouver, examined the property. The deposit occurs in a limestone country-rock.

In this respect it might be interesting to note that during October, 1924, the writer secured two samples from the outcroppings of the *Eagle No. 3* claim which assayed as follows:—No. 1: Gold, trace; silver, 1 oz.; copper, *nil;* zinc, 31 per cent. No. 2: Gold, trace; silver, 6.6 oz.; copper, *nil;* lead, 22 per cent.; zinc, 11 per cent.

QUATSINO MINING DIVISION.

The metal-mining industry in the Quatsino Mining Division from January 1st to August 31st, 1925, shows very satisfactory progress, especially in the vicinity of Alice, Victoria, and Elk lakes.

Old Sport.—This property, which is operated by the Coast Copper Company, a subsidiary of the Consolidated Mining and Smelting Company of Canada, under the superintendence of C. A. Seaton, is the most important in the Quatsino Mining Division. The workings in the *Old Sport* were very fully described in the Annual Report for 1924. Since the examination was made by the writer in October, 1924, development-work has been continued by forty miners and other employees and two diamond-drills have been kept steadily at work.

Preliminary steps have been taken towards developing the water-power furnished by Raging river, which empties into the head of Elk lake near the main workings on the *Old Sport*. From surveys and other information Mr. Seaton estimates that about 900 horse-power can be secured from this source, which will be ample, together with the power already secured from Canyon creek, for the proposed concentrator. The Canyon Creek power consists of 150 horse-power from

a 350-foot head of water carried through a flume 7,000 feet long. The compressor plant, sawmill, and other machinery, and camp lighting will be operated electrically.

During 1925 the Coast Copper Company has extended prospecting operations by securing an option on the *Pilgrim*, owned by O. A. Sherberg, of Quatsino, which is now being prospected by diamond-drilling. This property was examined by the writer and reported on in the 1916 Annual Report. The property at that time was owned by Henry Sherberg.

The Coast Copper Company is contemplating diamond-drilling on the *Caledonia*, situated near Quatse lake, about 8 miles from Hardy Bay. This group was reported on in the Annual Report of the Minister of Mines for 1923, and has since been thoroughly examined and sampled by the engineers of the Coast Copper Company with a view to securing an option and thoroughly prospecting the ground with diamond-drills.

This group appears to be a prospect of considerable potential value. Samples taken in 1923 from several open-cuts made along the strike of the ore-body showed that the width of the mineralized lode matter varies from 3 to 10 feet and in the bed of Caledonia creek reaches a maximum of about 30 feet.

The values shown by samples taken from the workings at the time of that examination vary as follows:—Sample No. 1 (*Caledonia*): Gold, trace; silver, 0.6 oz.; copper, *nil;* across 3 feet. Sample No. 2: Gold, trace; silver, 19 oz.; copper, 3.2 per cent.; across 9 feet. Sample No. 3 (*Cascade*, adjoining the *Caledonia*): Gold, 0.04 oz.; silver, 0.2 oz.; copper, 0.5 per cent.; iron, 61.5 per cent.; manganese, *nil*. Sample No. 4 (*Cascade*, taken from the outcropping, apparently about 30 feet wide, in the bed of Caledonia creek, but not to be considered an average): Gold, trace; silver, 16 oz.; copper, 3.2 per cent.; zinc, 10 per cent.

Prospecting has been continued along the line of strike of the ore-body by making several additional open-cuts. This recent work has not yet been examined as the writer was informed both by the owners of the *Caledonia* and engineers from the Coast Copper Company that that company contemplated doing diamond-drilling work later this year.

The *Old Sport* has not been examined by the writer this year, but the particulars published in this report were obtained from C. A. Seaton, superintendent, and reference is made to the activities of the company in this section of Vancouver island in this report because of the importance of the company's operations on Vancouver island.

Alice Lake Group.—The owners of this property, Clancy & Kinsey, have been driving a crosscut adit which is expected to intersect the ore-body at a depth of about 125 feet on the dip and within a distance of about 105 feet from the portal of the adit. They had driven about 85 feet up to August 1st, 1925. They had also prospected the lead farther along the strike in a westerly direction and found good indications that the ore-body maintained continuity in that direction for some considerable distance.

Samples taken during the examination made in October last across 20 inches assayed: Gold, 0.40 oz.; silver, 8 oz.; lead, 12 per cent.; zinc, 15 per cent. Another sample across 10 inches assayed: Gold, 1.46 oz.; silver, 8 oz.; lead, 4 per cent.; zinc, 15 per cent.

Indications at the face on August 1st last showed that the adit was apparently approaching an ore-body.

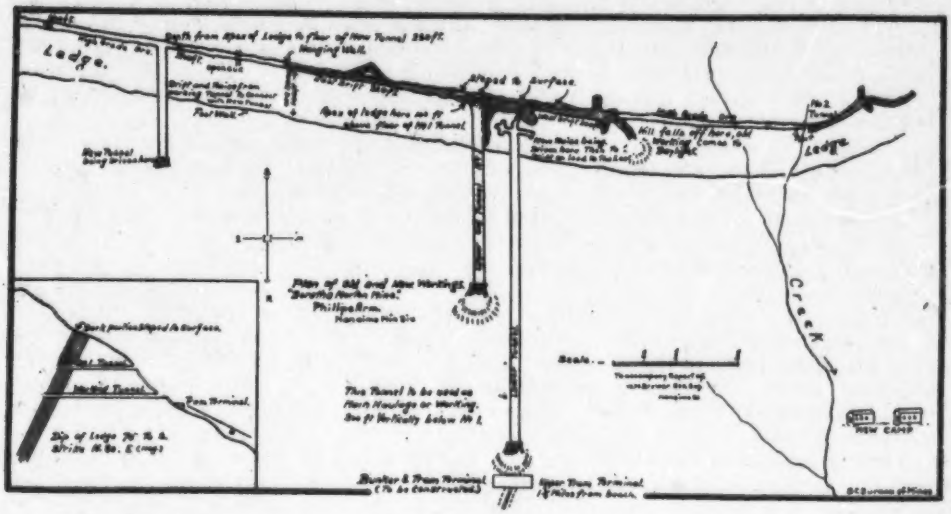
Millington.—The owners of the *Millington* on Spruce river, near the head of the West arm of Quatsino sound, have been engaged during the past spring and summer in constructing a wagon-road and a new bridge across Spruce river to enable them to ship the high-grade copper ore which has been developed in the upper workings of the mine, and have also been engaged in further prospecting along the line of the strike of the ore-body, as well as starting an adit at a much lower elevation than the present No. 2 adit.

NANAIMO MINING DIVISION.

The metal-mining industry has shown more activity in prospecting and reopening old mines in the Nanaimo Mining Division between January 1st and August 31st, 1925, than in any other in District No. 6, and this activity has been most apparent on that portion of the Nanaimo Mining Division situated on the Mainland.

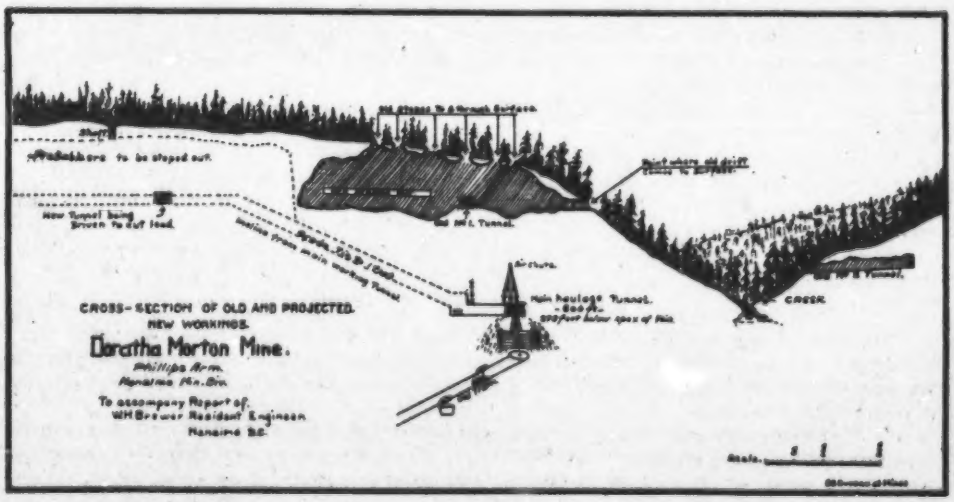
Doratha Morton.—Probably the most important development that has been made for several years past is in connection with the old *Doratha Morton* on Phillips arm, about 120 miles northerly from Vancouver. The early history has been summarized in the introductory remarks of this report.

From December 10th, 1924, to July 11th, 1925, when the writer made his examination, the following improvements and development-work have been made: A trail 2½ miles, reaching an elevation at the portal of the main tunnel of about 2,600 feet; a camp on the beach; a camp near the old *Doratha Morton;* a camp on the *Enid*, adjoining the *Doratha Morton;* a trail about 1½ miles long from the *Enid* to the beach, about half a mile distant from the *Doratha Morton* beach camp; clearing out No. 1, No. 2, and No. 3 old tunnels on the *Doratha Morton;* driving two adits, each 50 feet long, one on the *Doratha Morton* easterly from the old workings, the



other on the *Enid;* extending the east drift at the face of the No. 3 or main haulage-adit through the fault which cut off the ore. This faulting was apparently one of the principal reasons why the Fairfield Exploration Syndicate closed down work. An adit 50 feet long was driven on the old *Monte Cristo* near *Doratha Morton.* From this adit a small shipment of ore was made to Tacoma smelter early in the present year.

The feature of particular interest and importance with regard to the reopening of the *Doratha Morton* is the fact that after driving a few feet in extending the east drift at the face



of the No. 3 adit the fault that occurs at that point was crosscut and ore exposed on the easterly side of the faulted ground.

Alexandra.—This claim, situated at Picton point at the entrance to Phillips arm, was fully described in the Annual Report of the Minister of Mines for 1920. This claim was developed about 1898 by adits on four levels. No. 1, a little above high-water mark on the beach, is 530 feet long with three crosscuts, each 100 feet long; No. 2, about 50 feet above No. 1, 200 feet long; No. 3, 298 feet above sea-level, about 100 feet long; No. 4, 426 feet above sea-level, about 150 feet long.

Since 1898 there has been no activity until last spring, when Beaton, Dickie, and Hemsworth bonded the property and after clearing out the old workings installed a compressor plant and extended the development-work. Active operations are proposed.

The ore-body on the *Alexandra* is a wide quartz ledge apparently an extension of that on the *Enid*, adjoining on the west.

Vananda Copper and Gold Co.—A revival of interest in this old company has taken place. Its properties are located on the north-east coast of Texada island. The assets of the old company passed into the hands of the debenture-holders several years ago.

The engineers referred to in the introduction as having been appointed by C. B. Fitzgerald, manager for the late H. W. Treat estate, have compiled a voluminous report on the mines and undeveloped claims that originally formed the property of the Vananda Copper and Gold Company.

From all the reliable data that was gathered it is interesting to note that the average ore values as shown by smelter returns attached to the report of the engineers, covering several years' operations, in the various mines were as follows:—*Copper Queen:* From $5 to $25 in gold; 4 to 6 oz. in silver; and 4 to 12 per cent. in copper. *Cornell:* $2.50 to $8 in gold; 2 to 4 oz. in silver; and from 4½ to 10 per cent. in copper. *Little Billy:* $5 in gold; 1 oz. in silver; and 2.5 per cent. copper.

Mining has been carried on to a depth of 740 feet on the *Copper Queen*, to a depth of 560 feet on the *Cornell*, and 280 feet on the *Little Billy*.

In this connection it is interesting to note that on the *Marble Bay*, in close proximity to the *Copper Queen*, and the ore-bodies of which occur in a similar geologic formation to those on the Vananda Company's property, the mine-workings have been carried to a depth of 1,700 feet, or about 1,600 feet below sea-level, and the last work done on the *Marble Bay* in 1920 demonstrated that there was still ore below the 1,700-foot level, but considering the state of the copper market at that time it could not be mined with any margin of profit. There is every reason to form the conclusion that the ore-bodies on the *Copper Queen*, *Cornell*, and *Little Billy* mines maintain continuity to as deep a level as it has been proven on the *Marble Bay*.

The report of the engineers referred to cannot yet be made public, but it is generally hoped that these old mines will be reopened and the mining industry on Texada island assured.

Florence.—This claim, which is situated on Malaspina strait, about midway between Lund and Powell river, and connected with Lund by an automobile-road, has been acquired by Vancouver interests headed by J. E. Leckie. Together with three other adjoining claims the group has recently been incorporated as the Malaspina Mines, Limited. The ore occurrences on these claims carry values chiefly in zinc.

The *Florence* was reported on by the writer in the Annual Report of the Minister of Mines for 1917, also 1924. The transportation facilities are quite good. In addition to the automobile-road to Lund, about 5 miles distant, transportation by aerial tramway to the beach could be easily had at a minimum cost.

It is understood that the Malaspina Mines, Limited, will commence operations on this property shortly.

VANCOUVER MINING DIVISION.

Britannia Mining and Smelting Co., Ltd.—The writer desires to express his appreciation and thanks for the following information furnished to him by C. P. Browning, the general manager of this company, with regard to the work done and the production from January 1st to August 31st, 1925:—

"*Fairview-Bluff-Empress* mines: Drifts, 1,800 feet; raises, 1,000 feet; shafts, 100 feet; crosscuts, 900 feet. *Victoria* section: Drifts, 1,700 feet; raises, 300 feet; shafts, 200 feet; crosscuts, 700 feet. Production: Copper, 18,500,000 lb.; gold, 4,000 oz.; silver, 86,000 oz.

"Although the tunnel connection on the 2,200-foot level was made between the *Fairview* and *Victoria* sections of the mine during 1924, ore-haulage through this tunnel was inaugurated early in 1925, and now *Victoria* ore is first crushed at *Victoria* and delivered in 15-ton cars to the main transportation system.

"*Bluff* mine extensions are being opened up by raises and crosscuts as during the preceding year.

"In the *Victoria* section the No. 2 *Victoria* shaft has been sunk to the 2,350-foot level, where development is now going forward.

"Underground development in the *Fair West* section of the property, some 6,000 feet east of *Victoria*, is proceeding. A semi-permanent camp has been established and an electric-driven compressor is in use. Sinking on vein material will be started shortly.

"During August an option was taken on the claims recently worked by McVicar & Brown, located on Goat creek, about 10 miles east of Squamish, and a diamond-drill is now on its way to the claims to obtain underground information quickly."

PACIFIC GREAT EASTERN RAILWAY SECTION.

During 1924 there was considerable prospecting-work done along the line of the Pacific Great Eastern south from Alta lake, which resulted in several mineral claims being staked in the vicinity of McGuire, also on the Brandywine and North Cheakamus rivers, and during the present year prospecting has been continued. It is reliably reported, although the writer has not yet been able to visit that section this year, that outcroppings of ore carrying gold and silver values indicate that mines of commercial value may be developed.

So far as the prospecting has gone, occurrences of ore carrying gold and silver values are found in ledges of considerable width. On the *Blue Jack* group near McGuire, which was examined in 1924, the outcroppings are between 20 and 30 feet wide.

Near Squamish the *Sunshine* on Goat creek, about 8 miles east from Squamish, has been bonded by the Britannia Mining and Smelting Company and a diamond-drilling outfit transported to the ground in order to determine the extent of the ore-bodies as quickly as possible.

NEW WESTMINSTER MINING DIVISION.

Lucky Four.—It has recently been reported that the *Lucky Four* group, which is fully described in the Annual Reports for 1918 and 1919, has been bonded to the Anaconda Copper Company, which, if true, and if the bond is exercised, should prove a great boon to the metal-mining industry tributary to the Coast.

Dolly Varden.—This group, owned by the Silver Chief Mining Company and situated on Dolly Varden creek, near the head of Chilliwack lake, was fully described in the Annual Report for 1923. During 1924 reconstruction of bridges and widening of the trail between Hipkoe's ranch and Chilliwack lake has been done in order to afford facilities for hauling ore. Ore taken out during development-work has been sacked and as soon as the wagon-road is completed shipments will be started.

COAL-MINING.

SUMMARY REPORT FOR EIGHT MONTHS ENDED AUGUST 31ST, 1925.

BY GEO. WILKINSON, CHIEF INSPECTOR.

The gross production of coal during the first eight months to August 31st, 1925, is 1,584,695 long tons, compared with 1,332,266 long tons for the same period in 1924, an increase of 251,482 tons, or nearly 20 per cent.

There has been a decrease in the production from the Vancouver Island mines compared with the same period last year of 105,302 tons, also a decrease in the Nicola-Princeton District for the same period of 41,101 tons.

The decrease in the Vancouver Island and Nicola-Princeton Districts has been more than offset by the increase in production in the Crowsnest Pass District, the production in this district for eight months being 591,047 tons, compared with 190,041 tons for the same period during 1924, an increase of 401,006 tons.

There is a slight increase for the same period in the Northern District, Telkwa mines; the production for the first eight months this year being 947 tons, compared with 891 tons for the same period last year.

The manufacture of coke during the first eight months of this year is largely in excess of the amount produced during the same period last year; the production being 48,980 tons, as compared with 25,519 tons for the same period during 1924, an increase of 23,461 tons, a little over 91 per cent.

The coke production for the first eight months of the present year is 18,365 tons greater than the total production for 1924.

The production at the larger collieries on Vancouver island has been curtailed during the summer months to a large extent by the falling-off in the demand for domestic purposes. This occurs each year, but varies somewhat. A similar condition obtains to a more limited extent in the Nicola-Princeton District.

The mines in the Crowsnest Pass District have had a very successful year to date, having almost worked full time since the wage adjustment took place early in the year.

Coke is being manufactured at the Fernie ovens this year after a period of idleness of over five years, no coke having been manufactured at Fernie since early in 1919.

Providing no unforeseen circumstances arise to interrupt the production of coal, the gross production should reach 2,400,000 tons during the present year and the coke production about 73,000 tons.

The following table shows the production of the various collieries for the first eight months of the present year:—

COAL PRODUCTION TO THE END OF AUGUST (EIGHT MONTHS), 1925.

VANCOUVER ISLAND DISTRICT.

	Tons.	Tons.
Canadian Collieries (D.), Ltd.—		
Comox Colliery	149,593	
Extension Colliery	129,940	
South Wellington, No. 5	28,177	
		307,710
Western Fuel Corporation of Canada, Ltd.—		
No. 1 mine	192,637	
Reserve mine	95,666	
Wakesiah mine	61,124	
		349,427
Carried forward		657,137

COAL PRODUCTION TO THE END OF AUGUST (EIGHT MONTHS), 1925—*Continued.*

VANCOUVER ISLAND DISTRICT—*Continued.*

	Tons.	Tons.	Tons.
Brought forward		657,137	
Other collieries—			
Granby Consolidated Mining, Smelting, and Power Co., Ltd.	139,048		
Nanoose-Wellington Coal Co., Ltd.	50,993		
East Wellington Coal Co., Ltd.	30,714		
King & Foster (Old Wellington)	10,224		
		230,979	
Total for Vancouver Island District			888,116

NICOLA-PRINCETON DISTRICT.

Coalmont Collieries, Ltd.		64,712	
Middlesboro Collieries, Ltd.		29,918	
Keystone Coal Co., Ltd.		3,332	
Princeton-B.C. Colliery		3,543	
Tulameen Valley Coal Co., Ltd.		3,080	
Total for Nicola-Princeton District			104,585

NORTHERN DISTRICT.

Goat Creek mine, Telkwa			947

CROWSNEST PASS DISTRICT.

Crow's Nest Pass Coal Co.—			
Coal Creek Colliery	318,342		
Michel Colliery	228,505		
		546,847	
Corbin Colliery		44,200	
Total for Crowsnest Pass District			591,047
Total for Province			1,584,695

COKE PRODUCTION.

Coal Creek	Made into coke, 30,250 tons;	coke produced, 18,569 tons.
Michel	Made into coke, 46,225 tons;	coke produced, 30,411 tons.
Totals	Made into coke, 76,475 tons;	coke produced, 48,980 tons.

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